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U. S. DEPARTMENT OF AGRICULTURE.
BUREAU OF ENTOMOLOGY.
BULLETIN No. 5.

DESCRIPTIONS OF NORTH AMERICAN

CHALCIDIDÆ

FROM THE COLLECTIONS OF THE U. S. DEPARTMENT OF AGRICULTURE AND OF DR. C. V. RILEY,

WITH

BIOLOGICAL NOTES.

[FIRST PAPER].

TOGETHER WITH A LIST OF THE DESCRIBED NORTH AMERICAN SPECIES OF THE FAMILY.

BY

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DEPARTMENT OF AGRICULTURE,
BUREAU OF ENTOMOLOGY,
Washington, D. C., January 9, 1885.

SIR: One of the obstacles which the economic entomologist encounters in this country is the impossibility of properly referring by name to the majority of the insect enemies and parasites of very many of the most prominent injurious species. This difficulty has been greatly felt in the work of this Bureau, and some endeavor has been made to have certain families, like the Tachinidæ and Syrphidæ in Diptera, worked up. In the smaller Hymenoptera a very large amount of undescribed material has been reared, and as Mr. Howard has made a specialty of their study, I have desired that he devote whatever time he can well spare from his other duties, to working this material up. The paper herewith presented is the first of a series of descriptive papers which are intended to overcome the difficulty mentioned, and which, being technical and intended for circulation among entomologists, need only be printed in limited edition.

Respectfully,

C. V. RILEY,
Entomologist.

Dr. GEORGE B. LORING,
Commissioner of Agriculture.

FAMILY CHALCIDIDÆ.

Subfamily LEUCOSPINÆ.

Genus LEUCOSPIS Fabr.

In this genus the fore wings are folded as with the true wasps, the hind femora are greatly thickened, the tibiæ are broadened at their extremities, and the ovipositor of the female is curled up over the dorsum of the abdomen, usually reaching to the thorax.

1. Leucospis affinis Say.

This species is represented by two ♂ specimens taken in Northern Virginia in September. It is a common species, found from Canada to Texas, and is supposed to live in the nests of wild bees. [C. V. R. Coll.]

Subfamily CHALCIDINÆ.

The three genera which we shall consider in this subfamily may be separated as follows:

A. Abdomen petiolated ..... SPILOCHALCIS.
B. Abdomen sessile.
  a. Posterior tibia produced to a single spine at tip. Antennæ inserted at the middle of the face ..... CHALCIS.
  b. Posterior tibia two-spined. Antennæ inserted below the middle of the face. HALTICHELLA.

NOTE.—In this first paper on the Chalcididæ in the collection of the United States Department of Agriculture and that of Dr. C. V. Riley, which has been constantly used in the work of the Department, I have taken up the six subfamilies *Leucospinæ*, *Chalcidinæ*, *Encyrtinæ*, *Aphelininæ*, *Elachistinæ*, and *Elasminæ*. In numbers these subfamilies are not largely represented, but the material is mainly undescribed and is rendered valuable by the accompanying notes on habits and dates of issuance, which are connected with numbers in the collections. The hosts not specifically referred to are undetermined by Dr. Riley, and are, so far as known, undescribed.

L. O. HOWARD.

JANUARY 1, 1885.

Genus SPILOCHALCIS Thomson.

Head triangular; antennæ separated at base by a triangular notched elevation; thorax usually marked with yellow; metathorax rugose; fore wings with long marginal and postmarginal veins; abdomen, subglobose; petiole, moderately long, cylindrical; posterior margin of the femora densely serrate, except in *missouriensis*, which has four widely separated teeth; posterior tibiæ produced into a spine, and *middle tibiæ with a distinct spine.*

2. (1) **Spilochalcis mariæ** (Riley).

This common parasite has been reared from the following insects:

Antheræa polyphemus.—24 ♂, 23 ♀ specimens were bred from a cocoon of this species by V. T. Chambers, at New Orleans, La., in 1869. The collection also contains specimens bred from the cocoons of this moth by Dr. Hoffmeister, at Fort Madison, Iowa. [C. V. R. Coll.]

Samia cecropia.—Specimens bred by Mrs. Treat, at Vineland, N. J. [C. V. R. Coll.]

Callosamia promethea.—Same as preceding. [C. V. R. Coll.]

Attacus cynthia.—From a lot of 202 cocoons received from S. Lowell Elliot, New York City, were bred, in May, 1881, 113 ♀'s, 36 ♂'s. The former varied from 4^{mm} to 8^{mm} in length, and the latter from 3.5^{mm} to 6^{mm}. [Dept. Agr. Coll.]

Specimens bred from this species were received from A. H. Mundt, Fairbury, Ill. [C. V. R. Coll.]

Thyridopteryx ephemeræformis.—A specimen was bred from a bag of this insect, May 11, 1869, at Saint Louis. [C. V. R. Coll.]

3. (2) **Spilochalcis missouriensis** n. sp.

Female.—Length, 5^{mm}. Posterior femora with *four* widely separated teeth. Color, bright scarlet, marked with black as follows: Flagellum of antennæ, with the exception of club at tip; clypeus and occiput; a large circular spot on the mesonotum; a transverse band on the metanotum; an irregular spot on each side near tip of abdomen; a large spot on each side of the thorax just below tegulæ; a dorsal spot near the tip of the posterior coxæ; a minute circular spot on the dorsum of each hind femur, and two large round spots latero-ventrally, one in the middle and one at tip; spines of femur; a spot at the base of the hind tibiæ. The wings are slightly dusky, with a pronounced fuscous spot around club of stigmal vein; stigmal club securiform, entire; all wing veins brown.

Described from 1 captured ♀ (♂ unknown), Saint Louis, Mo., July. [C. V. R. Coll.]

Seems to come nearer to *Smicra lanieri* (Guer.), Cuba, than to any other described species.

4. (3) **Spilochalcis virens**, n. sp.

Male.—Length, 8^{mm}; expanse, 18^{mm}; greatest width of fore wing, 3.2^{mm}. Resembles somewhat *Sm. mariæ* (Riley). Pedicel short and slender; hind femora, 12-15 toothed. Colors, black and yellow; facial grooves, vertex, and occiput black; remainder of head yellow; scape of antennæ yellow, black above near tip; flagellum, black; first three joints brownish below; pronotum yellow, with a black spot anteriorly and one at each dorsal lateral angle; mesoscutum black, with four narrow longitudinal stripes;

axillæ yellow, black at tip; mesoscutellum yellow, with a broad central longitudinal black band; metanotum yellow, with a transverse black band and with two longitudinal lateral bands; pedicel black with a large yellow spot above; abdomen yellow, the joints above edged with black; front and middle legs entirely yellow, except that the middle coxæ and trochanters are tinged with brown at base; hind coxæ black, with a forked yellow stripe outside and a broad yellow band inside; hind femora yellow, inner disk edged with black, outer face with a short oblique tapering black stripe; hind tibiæ and tarsi yellow, the former with a brown shade on the edge toward the femora; wings slightly cloudy, veins yellow; stigmal club entire.

Described from 1 ♂ collected at Fort Madison, Iowa, by Dr. A. W. Hoffmeister. [C. V. R. Coll.]

5. (4) **Spilochalcis odontotæ**, n. sp.

Male.—Length of body, 2.4^{mm}; expanse of wings, 5.4^{mm}. General color light lemon-yellow; flagellum of antennæ with a strong ferruginous tinge; occiput, black; pronotum with a small black spot on either side; mesoscutum with a median faintly-defined black spot; mesoscutellum with a similar well-defined spot; borders of all mesonotal sutures black, the posterior and outer borders of the scapulæ more widely edged with black than the other parts; metanotum and metasternum with blackish patches; pedicel nearly white, semi-transparent; abdomen, honey-yellow, each segment edged with black, second segment bright lemon-yellow; legs nearly white; hind coxæ with a dusky spot at internal base; teeth of hind femora black, and both hind femora and tibiæ faintly mottled with ferruginous. Wings clear; veins nearly black; stigmal club slightly notched.

Described from 1 ♂ specimen, bred July 31, 1884, from the pupa of *Odontota scutellaris*, mining leaves of *Robinia pseudacacia* at Washington, D. C. [C. V. R. Coll.]

6. (5) **Spilochalcis delira**, (Cress).

This species was described by Cresson from a male specimen collected in Texas by Belfrage. Two females studied in this connection, one taken by Mr. Schwarz in Florida (Haw Creek), in July, 1883 [Dept. Agr. Coll.], and the other collected on cotton by Mr. Patton, at Selma, Ala., October, 1881 [C. V. R. Coll.], seem without much doubt referable to this species, and I so place them pending an actual comparison of specimens.

7. (6) **Spilochalcis albifrons** (Walsh).

This is the species described by Walsh (Trans. Ill. State Agr. Soc. iv., 1861) as a secondary parasite on his *Pezomachus minimus*, bred from the army worm (*Leucania unipuncta*, Haw.). It was originally described as a *Chalcis*, but evidently belongs in *Spilochalcis*. It is represented by one poor specimen. [C. V. R. Coll.]

Genus Chalcis Fabr.

Head short, triangular; antennæ inserted a little below the middle of the face, their bases but slightly separated, and the scape entirely contained within the antennal groove; postmarginal vein of the fore wings shorter than the marginal; abdomen almost sessile, oblong, subtriangular; anterior femora subfusiform, posterior ovate, with a crenate lower margin; middle tibiæ each with a spur at tip; posterior tibiæ prolonged at tip into a spur.

8. (1) **Chalcis ovata** Say.

A number of specimens of this species occur in the collections. They vary greatly in size (between 6mm and 3mm in length), and were bred from the following insects:

Thyridopteryx ephemeræformis.—Specimens were bred October 14, 1882, from bags of this species collected at Washington, D. C. [Dept. Agr. Coll.]

Apatura clyton.—Specimens were bred, September 17, 1878, from the pupæ of this species collected at Columbia, S. C. [C. V. R. Coll.]

Aletia xylina.—Many specimens bred from pupæ of this species, from August 4 to September 10, 1879, and during subsequent autumns, received from various southern States, especially Alabama and Texas. [C. V. R. and Dept. Agr. Coll.]

Desmia maculalis.—Missouri (no date). [C. V. R. Coll.]

Cacœcia rosaceana (?).—One very small specimen bred June 12, 1873. [C. V. R. Coll.]

Gelechia gallæ-solidaginis.—Missouri (no date); a very small specimen. [C. V. R. Coll.]

Botis alnialis Riley MSS. District of Columbia, October 8, 1883. [Dept. Agr. Coll.]

9 (2) **Chalcis robusta** Cresson.

This species was described by Mr. Cresson (Proc. Ent. Soc. Phila., iv, 1865, p. 101) from four Cuban specimens. There is one specimen in Professor Riley's collection which agrees perfectly with the description, and which was bred by Mr. Hubbard, September 14 or 15, 1881, at Crescent City, Fla., from a cocoon of *Lagoa opercularis.* Mr. Hubbard, also, in June or July, 1882, bred another specimen of this insect from a chrysalis of *Papilio cresphontes*, also at Crescent City. The chalcid issued from a large circular hole cut through the thorax of the pupa. [Dept. Agr. Coll.]

10. (3) **Chalcis columbiana**, n. sp.

Female.—Length, 5mm. Head and dorsum of thorax black, with whitish hairs and large close punctures; scape of antennæ ferruginous; tegulæ, yellowish-white; abdomen, ferruginous, with the last joint black, and the dorsum of the last five joints also black; front coxæ black, middle and hind ferruginous; middle femora with a black central spot; hind femora ferruginous, with a yellow spot at tip; tibiæ with a yellow spot at either end. Wings hyaline, veins dark brown.

Described from 1 ♀ collected in District of Columbia July 10, 1880. [C. V. R. Coll.]

Comes near description of *C. coloradensis* Cress., but may be distinguished by its ferruginous hind coxæ and basal abdominal joints.

11. (4) **Chalcis tachinæ**, n. sp.

Female.—Length, 4.4mm; expanse, 7.6mm. This species comes close to *C. coloradensis* Cress. General color black; tegulæ yellow; all legs ferruginous, except coxæ; middle femora and tibiæ with a dusky band in center; teeth of hind femora black; hind femora with a yellowish spot at apex; hind tibiæ with a blackish stripe ventrally.

Described from 1 ♀ specimen. This specimen was bred, December 29, 1883, from the puparium of a Tachinid, the larva of which was found with the eggs of *Caloptenus atlanis* Riley, at Boscawen, N. H., October 7, 1883. The Tachinid larva showed no signs of being infested, and transformed to an apparently healthy pupa. [C. V. R. Coll.]

Genus HALTICHELLA Spinola.

Head triangular; eyes large. Antennæ inserted contiguously, near the mouth: scape long, reaching to the ocelli. Anterior wings with a short marginal vein, very short stigmal and still shorter post-marginal. Abdomen ovate, second segment somewhat flattened above. Posterior femora smooth below, or obtusely bidentate. Posterior tibiæ with two spurs, middle with one.

12. (1) **Haltichella americana**, n. sp.

Female.—Length, 4mm. Head and thorax densely and coarsely punctured, more closely on occiput. Color black, with whitish pile. Front coxæ, and femora black, tibiæ ferruginous at either end, tarsi ferruginous; middle legs the same; hind legs entirely black, tarsi ferruginous. Wings very slightly dusky under the stigma.

Described from 2 ♀'s, both collected at Washington, D. C. [C. V. R. Coll.]

Approaches very closely *H. armata* (Panz.) of Europe, but differs in the completely black antennæ and the nearly clear wings.

Sub family ENCYRTINÆ.

The eight genera of this subfamily, which are represented in the collections, may be separated as follows, the females alone being considered:

A. Scutellum with a tuft of stiff hairs at tip.....CHILONEURUS.
B. Scutellum with no such tuft.
  a. Head with very deep, large, and regular round impressions....BOTHRIOTHORAX.
  b. Head with no such sculpture.
    a. Head thickly and finely punctate, antennal club often obliquely truncate. COPIDOSOMA.
    b. Head nearly smooth, antennal club always strongly obliquely truncate. HOMALOTYLUS.
    c. Antennal club not obliquely truncate.
      aa. Mesonotum lusterless.....APHYCUS.
      bb. Mesonotum shining with a metallic luster.
        aa. Antennæ extremely long and thin; no marginal vein.....PSILOPHRYS.
        bb. Antennæ very long and thin; marginal vein longer than stigma. LEPTOMASTIX.
        cc. Antennæ not specially long .....ENCYRTUS.

In the Annual Report for 1880 I described twelve species of this subfamily, all of which were parasitic upon bark-lice. I here describe twenty-three additional species, but of these only eight are bark-louse parasites, three are parasitic upon Psyllidæ, five upon Lepidopterous larvæ, one upon a Coleopterous larva, and two upon Dipterous larvæ, while the hosts of four are unknown. Of these four the strong probabilities are that one is parasitic upon some Dipterous larva, one upon a Lepidopterous, and the other two upon bark-lice.

Genus Copidosoma Ratzeburg.

Female.—The antennæ arise near the border of the mouth; the scape is long and slender; the six-jointed funicle long and slender, or short and comparatively thicker; the club is either long, delicately bent and somewhat rounded at tip, or it is thicker and markedly obliquely truncate. This truncation is produced by the drying of a strip of more delicate membrane upon one side of the club. Front and vertex closely punctured, without larger deep punctures. The mesoscutum and often the scutellum have with most species a sculpture which was called by Ratzeburg "schuppig" (scaley), and also a thicker punctuation with round or aciculate punctures. The marginal vein is either lacking, or it is a little shorter than the stigmal. The wings are hyaline. The ovipositor is very long, but may also be entirely hidden.

Male.—The male resembles the female in the form of the body, in the punctuation, and also in the relative proportion of the wing veins, differing to a marked degree only in the antennæ. These are given off near the border of the mouth as with the female; the scape is long and slender, the pedicel shorter than the first funicle joint; the funicle is rather thickly covered with short hairs (the hairs shorter than the joints), with the joints separated above more than below; the club is about as thick as the funicle. The base of the scutellum has a more or less delicate longitudinal carina, but no furrow.

13. (1) Copidosoma gelechiæ n. sp.

Female.—Length, 1.5mm; expanse, 3.5mm; greatest width of fore wing, 0.65mm; antennal club of the obliquely truncate type, as long as the five preceding funicle joints together; pedicel of the same length as the first funicle joint; funicle joints gradually decreasing in length from 1 to 6. Punctures of head nearly round, of mesoscutum lengthened somewhat longitudinally, of the axillæ transversely aciculate towards tip, broader near base, of the scutellum longitudinally aciculate, especially narrow down the median line; ovipositor extruding but slightly; marginal vein wanting. Color: Head and pronotum, black, with purplish reflections; antennæ, dark brown, nearly black throughout, end of pedicel yellowish; mesoscutum, bright golden green; axillæ, somewhat more subdued; mesoscutellum very dark brownish-green, tegulæ of the same color; abdomen smooth and shining with a greenish luster; all coxæ dark green; front and middle legs entirely honey-yellow; hind femora dark green, yellow at tip; hind tibiæ yellow, with a dark band around proximal third; tarsi yellow.

Male.—Length, 1.6mm; expanse, 3.9mm; greatest width of fore wing, 0.79mm. Antennal club but slightly longer than sixth funicle joint; pedicel nearly as thick as long; first funicle joint nearly three times as long as pedicel. Punctuation like that of ♀. Color: Head, pronotum, and mesoscutum all bright golden-green; axillæ and mesoscutellum, a shade less brilliant; all legs nearly black throughout, with a greenish luster, and with the knees yellowish; middle tibial spur and first tarsal joint also yellow; remainder of middle tarsi and all joints of fore and hind tarsi blackish.

Described from 4 ♀'s and 4 ♂'s bred from the larvæ of *Gelechia gallæ-solidaginis* collected in District of Columbia. The parasites issued October 19.

Variety a.—What may be called a variety of this species was bred in great numbers by Mrs. Mary Treat from *G. gallæ-solidaginis*, August 8, in New Hampshire. The female of this variety lacks the brownish

band on the hind tibiæ, and the male has wider yellow bands at all the knees, and the tarsi are lighter in color.

Variety b.—In this variety the hind femora become entirely honey-yellow. Many specimens occur among those bred from *G. gallæsolidaginis* in Missouri; and an intermediate form, in which the hind femora have a blackish shade, also occurs among the same lot of specimens.

It was this variety which was popularly described by Professor Riley in the first Missouri Entomological Report (p. 176) as "the Inflating Chalcis"; giving an account of its habits, in which it does not differ from other members of the genus, except that, inasmuch as its host is a gall-inhabiter, it has to escape from the gall as well as from the inflated skin. All the individuals, according to the report just mentioned, "escape through a single minute hole which must be made by one of their number"; but it has also been observed that where the host has already prepared the opening for its own future exit, before succumbing to the attacks of the parasites, the latter make use of this opening for their egress. [C. V. R. and Dept. Agr. Coll.]

14. (2) **Copidosoma vagum**, n. sp.

Female.—Length, 1.4mm; expanse, 2.8mm; greatest width of fore wing, 0.46mm. Club of antennæ delicately curved, not obliquely truncate, as long as the two preceding funicle joints together. Punctures of head round, of mesoscutum and axillæ nearly round, somewhat polyhedral; of scutellum longitudinally aciculate; abdomen slightly transversely shagreened at base; ovipositor one-third as long as abdomen. Color: Antennæ black, scape with metallic luster; head and pronotum dark and somewhat purplish; mesoscutum bright greenish; scutellum coppery; abdomen shining greenish-black; all coxæ and femora shining black; front and middle femora, yellowish at tip; all tibiæ yellow, middle and hind with a brown ring near base, and fore with a brownish shade above; front and hind tarsi dusky; middle tarsi and tibial spur light yellow.

Male.—Length and proportions about the same as with ♀, except that the wings are somewhat longer and stronger. Club twice as long as sixth funicle joint, first funicle joint twice as long as pedicel. Punctation as in ♀; abdomen more strongly shagreened; mesoscutellum with a faint median longitudinal carina; colors as with the ♀, except that the hind tibiæ are almost entirely black, and the front tibiæ entirely brown; hind tarsi white, except last two joints.

Described from four ♀'s and many ♂'s bred from the larvæ of *Gelechia pseudacaciella* Chambers, in Missouri in May. [C. V. R. Coll.]

15. (3) **Copidosoma celænæ**, n. sp.

Female.—Length, 0.93mm; expanse, 2.25mm; greatest width of fore wing, 0.37mm. Antennæ, rather short; club of the obliquely truncate type; pedicel three times as long as first funicle joint, which is thicker than long; funicle joints increasing slightly in length, and in about the same ratio in thickness; club as long as the five preceding funicle joints together. Head and mesoscutum with roundish polyhedral impressions, those on the head becoming somewhat elongate transversely towards occiput, and those on scutum longitudinally towards scutellum; axillæ with the same, becoming transversely aciculate towards tip; punctures of mesoscutellum roundish at immediate base, but longitudinally aciculate elsewhere. Color: Head, mesoscutel, axillæ and tegulæ dark with a coppery luster; mesoscutum dark golden-green; anten-

næ black, abdomen dark with a greenish luster, transversely shagreened above; all coxæ and femora black; front and hind tibiæ dark brown, whitish at base; middle tibiæ light brown, whitish at both base and tip; front and hind tarsi yellow brown; middle tarsi whitish.

Described from many ♀'s, no ♂'s; bred, May 16, from the larva of *Celæna renigera*, collected at Saint Louis, Mo. The parasited larva did not present the usual honeycombed appearance, on account of its large size and tough brown skin. The parasites, too, are very small, and the minute punctures made in exit are almost imperceptible. On breaking the larva open, however, the honeycomb structure is at once apparent. [C. V. R. Coll.]

16. (4) **Copidosoma intermedium.** n. sp.

Female.—Length, 1.25mm; expanse, 3.2mm; greatest width of fore wing, 0.57mm. Differs from *C. gelechiæ* in the following particulars: Punctures of mesoscutum only slightly elongated longitudinally behind; punctures of mesoscutel subaciculate longitudinally, but not so sharp as in *gelechiæ;* of axillæ, nearly round. Antennæ, black; front legs dark brown throughout; middle legs with dark brown femora, a light-brown shade near base of tibia; most of ia, tibial spur, and tarsi light yellow; hind legs with greenish femora, dark brown tibiæ yellow at tip, and yellow tarsi.

Male.—Dimensions same as in female, except that the fore wing measures 0.6mm in width. Punctures of vertex with a transversely elongate tendency; of mesoscutel even broader than those of ♀, narrower in center near base than elsewhere. Flagellum of antennæ strongly flattened; joint 1 of funicle, three times as long as pedicel, and considerably wider. In color differs from ♀ as follows: Antennæ, brown; scape darker than flagellum; head, pronotum, mesoscutellum, and axillæ with a strong bluish-green luster; front and middle femora and tibiæ dark brown, with yellowish tips; hind femora and tibiæ nearly black, with greenish luster, yellow only at joints; front and hind tarsi brown, middle tarsi yellow.

Described from 2 ♀'s and 25 ♂'s bred, October 11, from the larvæ of *Gelechia gallæ-asterella* Kellicott, in galls collected at Vineland, N. J., by Mrs. Mary Treat; also bred in August from galls of the same insect collected around Saint Louis. [C. V. R. Coll.]

Genus Encyrtus Dalman.

Female.—Antennæ 11-jointed, inserted not far from the border of the mouth, moderately thick, and, with the exception of the scape, very seldom compressed; the scape is often strongly broadened; the club is rounded, or with a slight oblique truncation at tip. The facial impression is rather large and often quite deep. The mesonotum is transversely arched, shagreened, and more or less lustrous; the scutellum shows a different sculpture. The wings are always developed and ciliated; the marginal vein is present, seldom very short; the stigmal is moderately long. The ovipositor is not as long as half the abdomen.

Male.—The flagellar joints are slightly or not at all compressed, and covered equally (not in half whorls) with hairs.

17. (1) **Encyrtus sublestus,** n. sp.

Male.—Length, 1.28mm; wing expanse, 2.66mm; greatest width of fore wing, 0.51mm. Scape short, four times as long as thick; pedicel, at distal end, as thick as long; first flagellar joint, two and one-fourth times as long as pedicel; remaining flagellar

oints subequal, the third being the shortest; the club is nearly as long as the two preceding joints together; all joints, except scape and pedicel, furnished with long *non-whorled* hairs. Head and mesonotum very delicately but distinctly punctured. Color: Head and thorax metallic blue-black, abdomen shiny black; all coxæ metallic blue-black; all femora brown, light at tips; all tibiæ dusky, light at tips, the hind tibiæ darker than the others; all tarsi pure white with dark claws. The stigmal vein is longer than the marginal, which is very short and thick.

Described from 1 ♂ specimen (♀ unknown) bred, April 6, 1882, from *Lecanium* sp. on *Pinus australis*, collected at Archer, Fla. [C. V. R. Coll.]

18. (2) **Encyrtus ensifer**, n. sp.

Male.—Length, 0.66mm; wing expanse, 1.75mm; greatest breadth of fore wing, 0.36mm. Antennæ long and furnished with long hairs arranged in two irregular whorls; pedicel and flagellar joints subequal in length and about 1.5 times as long as broad; the flagellar joints are deeply incised dorsally, giving each a moderately strong, rounded, dorsal prominence; the club is somewhat longer than the two preceding flagellar joints. Head and mesonotum very delicately and finely punctured. Color: Head, thorax, and abdomen shiny dark-brown, nearly black; antennæ light brownish-yellow; all legs dusky, light at joints; wing-veins dusky, marginal vein darkest. Stigmal vein longer than marginal, uncus consisting of four cells. [The penis, as shown in one specimen, is somewhat hastate and not bifid as with *Eupelmus* and other chalcids.]

Female.—Length and proportions much the same as those of the ♂. Antennæ somewhat compressed; scape not widened; pedicel twice as long as wide and somewhat longer than first flagellar joint; all flagellar joints subequal in length and width and flattened cylindrical in form; club large, oval, compressed laterally, as long as three preceding flagellar joints. Sheath of ovipositor more than half the length of abdomen. In every specimen examined the ovipositor was not contained in its sheath, but stretched out from its insertion in the first abdominal joint in a sword-like curve as long as the whole body. General color as with ♂; base of antennal scape dusky, tip yellow, pedicel dusky throughout, flagellum light yellow-brown; legs slightly dusky, except at ends of joints; ovipositor bright yellow, sheath dark brown.

Described from 3 ♂, 4 ♀ specimens, bred June 1 and 5, 1882, from *Aspidiotus corticalis* Riley MSS., on peach, collected at Crescent City, Fla., by H. G. Hubbard. [Dept. Agr. and C. V. R. Coll.]

19. (3) **Encyrtus fuscicornis**, n. sp.

Female—Length, 1.93mm; wing expanse, 4.6mm; greatest width of fore wing, 0.69mm. Punctuation of mesonotum very delicate. Antennal scape slender, not widened, marginal vein present, but shorter than stigmal. General color dark honey-yellow; antennal scape dark yellow, pedicel and first three funicle joints fuscous, last three funicle joints light yellow, club black and compressed; scutellum dusky and and with an irridescent tinge; tegulæ dusky at tips; metanotum black; superior surface of abdomen black, inferior surface dusky, all legs uniformly yellow. Wings fuscous, somewhat clear at base, and with two transverse hyaline streaks, the broader of the two, just at tip of stigma, with its proximal border concave and its distal border straight, and the narrower one at outer third of wing with its two borders parallel.

Described from 1 ♀ specimen collected at Odenton, Md., June, 1882. [C. V. R. Coll.]

20. (4) **Encyrtus puncticeps**, n. sp.

Female.—Length, 2.2^{mm}; expanse of wings 4.42^{mm}; greatest width of fore wing, 0.69^{mm}. Scape, slender, not widened; pedicel, stout, conical; funicle joints, except first and second, wider than long, and the exceptions are but slightly longer in proportion to their width; club flattened, pointed at tip and very obliquely truncate from near base to tip. Head and face very thickly and finely punctulate; ocelli in a somewhat acute-angled triangle; mesonotum thickly and finely punctate. Color: Head dark reddish-brown, scape and pedicel the same, funicle blackish, club black; margin of eyes black; pronotum dusky; mesonotum dark honey-yellow, with the scuto-scutellar furrow and the tips of scapulæ black; tegulæ light yellow, black at tips; metanotum and abdomen, black; front, middle, and hind coxæ and femora and front and middle tibiæ, honey-yellow; hind tibiæ and tarsi metallic blue-black; middle tarsi, except basal half of first joint, black; front tarsi dusky. Wings hyaline except a subcircular brown patch just beneath stigma; marginal vein lacking, postmarginal short.

Described from 2 ♀ specimens collected at Arlington, Va., September, 1881. [C. V. R. Coll.]

21. (5) **Encyrtus bucculatricis** Howard.

This species, which was described and figured in Lintner's first report as State entomologist of New York, was first bred by Professor Riley, in the spring of 1874, from the cocoons of *Bucculatrix pomifoliella* (collected at Allenton, Mo.), together with *Cirrospilus flavicinctus* Riley, a small Braconid and a minute Tetrastichid, the latter being probably a secondary parasite. The Encyrtus was by far the most numerous of these parasites, and was continually issuing from the latter part of March until the first week in July.

In July, 1884, it was bred from the cocoons of a *Bucculatrix* on oak on the Department grounds at Washington. From one to three of the parasites issued from a single cocoon. The species was originally described from the ♀ only, but among these last bred was one ♂. The male is somewhat smaller than the female, the tibiæ are dark brown in color, and the antennæ light brown. The joints of the flagellum are well separated and furnished with well-marked whorls of hair. [C. V. R. and Dept. Agr. Coll.]

22. (6) **Encyrtus trioziphagus**, n. sp.

Female.—Length, 1.3^{mm}; wing expanse, 2.9^{mm}; greatest width of fore wing, 0.51^{mm}. Antennal scape stout, short, not reaching to top of the eyes, with no foliation below; pedicel short, conical, as thick as long and not exceeding in length the first funicle joint; joints of funicle hard to distinguish, somewhat flattened and subequal in length, sixth as broad as long; club subfusiform, as long as three preceding funicle joints together. Antennal grooves deep; two slight malar impressions; clypeus and vertex covered with fine punctures, lower face smooth, eyes wide apart; ocelli form a very obtuse angled triangle. Mesonotum delicately shagreened, with slight, sparse punctures, each giving rise to a short, delicate hair; no marked difference between scutum and scutellum in punctuation; axillæ just meet at tips. Wings perfectly clear; marginal vein wanting; stigmal one-third longer than postmarginal. Abdomen nearly circular, sunken in center. Color: Flagellum of antennæ brown; scape and pedicel black, with a greenish luster; lower part of face with a brilliant purplish-blue luster; clypeus and vertex dark coppery-brown; pronotum, coppery;

mesonotum bright shining green, the scutum somewhat more brilliant than the scutellum; metanotum and abdomen shining black, with a dark green luster; all coxæ and femora dark green, honey-yellow at tips; front tibiæ honey-yellow, greenish at base; middle tibiæ entirely honey-yellow, sometimes with a slight green spot near base; hind tibiæ green, honey-yellow at either end; front and hind tarsi brownish; middle tarsi yellow.

Male.—Length, 1^{mm}; wing expanse, 2.5^{mm}; greatest width of fore wing, 0.5^{mm}. Differs from ♀ chiefly in the antennæ. The flagellum is much flattened; scape still shorter than in ♀: pedicel very short and insignificant; joint 1 of the funicle twice as long as wide, and three times as long as pedicel; joints 2, 3, and 4 are fang-shaped dorsally; joint 3 more acute than 2 or 4; joints 5 and 6 resemble joint 1 in size and proportions; club short and suboval. Abdomen short and subcordate in form.

Described from 4 ♀'s and 2 ♂'s bred, November 7, 1881, from the galls of the Psyllid *Trioza diospyri* (Ashmead), on the Persimmon (*Diospyros virginiana*) on the Department grounds at Washington.

This species is markedly different from *Encyrtus triozæ* André, bred by M. Ed. André from *Trioza centranthi* Vallot, and described in Ann. Soc. Ent. France, 1878, p. 84; but belongs to the same group of the genus *Encyrtus* as *E. strobili* (L.), to which it is quite closely related. *E. strobili*, however, preys upon certain gall-making Cecidomyids, as *Cec. rosaria* and *C. salicina*.

A single Encyrtus issued from a single Trioza in every case, making its way through the dorsum of the abdomen of its host. [Dept. Agr. and C. V. R. Coll.]

23. (7) Encyrtus solus, n. sp.

This species also belongs to the group of *E. strobili* (L.), and does not differ structurally from *E. trioziphagus* to a material extent. In size and coloration it does differ quite markedly.

Female.—Length, 2^{mm}; wing expanse, 4.2^{mm}; greatest width of fore wing, 0.7^{mm}. Mesonotum somewhat more deeply shagreened than with *trioziphagus*. Color: The basal portion of each antennal joint brown, distal portion honey-yellow; face black, with a faint bluish tinge; mesonotum black, faintly greenish; abdomen shiny black. All legs entirely yellow, except hind coxæ, which are black, with a greenish luster.

Described from 1 ♀ specimen bred, March 14, 1879, from the gall of *Trioza magnoliæ* (Ashmead), on *Persea carolinense* (Red Bay), collected at Gainesville, Fla. Its habits appear to be the same as those of the preceding species. [C. V. R. Coll.]

24. (8) **Encyrtus pachypsyllæ**, n. sp.

This species is closely related to *E. trioziphagus*. The minute spines at the distal end of the posterior tibia, opposite the tibial spur, are longer and more curved than with *trioziphagus*. The coloration differs in that with *pachypsyllæ* the tibiæ and tarsi are all light honey-yellow, and the flagellum of the ♂ antenna is light brown. The ♂ antenna also differs from that of *trioziphagus* in that joints 1, 2, and 3 of the funicle are fang-shaped instead of 2, 3, and 4. The dimensions on the average are the same in both species, although *pachypsyllæ* is quite variable in the ♀.

Described from many ♂ and ♀ specimens bred, between May 5 and 10, 1884, from galls of *Pachypsylla celtidis-gemma* Riley, collected in Southern Maryland. [Dept. Agr. and C. V. R. Coll.]

25. (9) **Encyrtus cecidomyiæ**, n. sp.

Female.—Length, 1.8mm; expanse 3.84mm; greatest width of fore wing, 0.72mm. Comes closer, perhaps, to the European *E. notodontæ* of Mayr than to any other species. The scape is nearly cylindrical; pedicel somewhat bulbous; funicle joints very gradually decreasing in length and increasing in width from joint 1, which is one and one-half times as long as thick, to 6, which is nearly as thick as long; the club is oval, much compressed, and as long as the three preceding funicle joints together. Head and notum very delicately and uniformly punctured, the punctation of the mesoscutum and scutellum identical. General color metallic-green, flagellum of the antennæ black, all tarsi brown, femero-tibial articulation of front and middle legs, and distal tip of middle tibiæ and accompanying spur honey-yellow. Marginal vein wanting, stigmal a trifle longer than postmarginal.

Male.—Dimensions, punctation and coloration nearly the same as with ♀. Differs in the antennæ, the scape of which is very short and slightly emarginate beneath; pedicel short, less than half the length of first funicle joint; funicle joints subequal in length, subovoid in shape, well separated, and clothed with moderately long hairs; club oval, as long as last two funicle joints together; club and funicle honey-yellow, scape and pedicel black.

Described from many ♂ and ♀ specimens bred, April 12, 1884, from the galls of *Cecidomyia salicis-siliqua* Walsh, collected in Northern Virginia. [Dept. Agr. and C. V. R. Coll.]

Genus Chiloneurus Westwood.

Female.—Antennæ given off near the border of the mouth, 11-jointed; pedicel longer than the succeeding joint; the flagellum is cylindrical or somewhat flattened; club spindle-shaped or compressed. Vertex narrow; head and face not coarsely punctured. Mesothoracic scutum is covered with short, delicate, silver-white hairs, and the scutellum bears a tuft of long, black, stiff bristles. The ovipositor protrudes slightly. Marginal vein long; stigma and postmarginal very short.

Male.—Differs from the female principally in the antennæ; the pedicel is scarcely longer than thick; the succeeding joints to the club are long, slender, distinct, and, with the exception of the first, are each contracted in the middle, and are furnished above with two half whorls of long, diverging hairs; the club is not thicker than the preceding joint, and is shorter than the two preceding joints together. The hairs upon the scutellum are more scattered than in the ♀, and not gathered together in a tuft.

26. (1) **Chiloneurus albicornis** Howard.

A single female of this species was bred, May 7, 1883, from an undetermined species of *Lecanium* collected on *Quercus aquatica*, "water-oak," at Bluffton, S. C., by Dr. J. H. Mellichamp. [C. V. R. Coll.]

In a small collection of chalcids labeled by Walker I find a *Chiloneurus* bearing the label *C. elegans* Dalm., which closely resembles *C. albicornis*, the only difference perceptible (perhaps on account of the poor condition of the specimen) being a darkening of the third and fourth funicle joints. The Walker specimen, however, differs radically from the description of *elegans* in Mayr's revision, and furnishes only another instance of the proverbial carelessness of the English author.

27. (2) **Chiloneurus dubius**, n. sp.

Male.—Length, 1.05^{mm}; expanse, 2.5^{mm}; width of fore wing, 0.37^{mm}. Antennæ light brown; face, honey-yellow, brownish towards vertex; pronotum, mesoscutum, and axillæ black, with silvery-white hairs on pronotum and scutum; axillæ finely punctured; mesoscutellum bright rust-red, with a loose tuft of black hairs at tip; abdomen black, with a coppery luster; fore wings with a small dusky patch below stigma. Front and middle legs light yellowish throughout; hind legs black throughout, with the exception of a whitish femero-tibial articulation and the first three white tarsal joints.

Described from 4 ♂ specimens, parasitic in all probability, on a species of *Lecanium* (probably undescribed) from Scotch and Dwarf Mountain Pine, collected in 1874, at Lancaster, Wis., by A. W. Barber, and later at St. Louis. [C. V. R. Coll.]

28. (3) **Chiloneurus dactylopii**, n. sp.

A large number of specimens of a species of Chiloneurus was bred from a common "mealy bug" (*Dactylopius destructor* Comst.), on the garden Pæonia on the Agricultural Department grounds, at Washington, late in November, 1884. It is impossible to distinguish the female of this species from that of the European *C. formosus* Boh., as I am informed by Dr. Mayr; but the males of the two species are readily distinguishable by the relative lengths of the marginal and stigmal veins. In *formosus* the marginal is twice as long as the stigmal, while in *dactylopii* it is only slightly longer. [Dept. Agr. and C. V. R. Coll.]

Genus APHYCUS Mayr.

Female.—Antennæ 11-jointed, moderately short, inserted near the mouth; scape widened or cylindrical; pedicel about twice as long as thick; the joints following the pedicel are thicker than long, and increase in thickness by degrees; the club is about as long as the three preceding joints, and is obliquely rounded, often compressed. Face, vertex, and dorsum of thorax are lusterless and finely punctate, frequently clothed with yellowish hair. Ovipositor usually not protruding. The marginal vein is not developed, and the stigmal is given off at the juncture of the submarginal with the costa.

Male.—Distinguished by the antennæ, in which the pedicel is longer than the succeeding joint (this is so also with the female but not with the males of allied genera). The flagellum is uniformly clothed with hairs; the first joints are longer than thick, and the club only so long as the two preceding joints.

29. (1) **Aphycus brunneus**, n. sp.

Female.—Length, 1.06^{mm}; expanse of wings, 2.12^{mm}; greatest width of fore wings, 0.41^{mm}. Scape of antennæ not broadened; ovipositor slightly exserted. Head very delicately shagreened; mesoscutum, scapulæ, and mesoscutellum thickly but not deeply punctured; punctures of mesoscutum and scapulæ transverse oval, and of scutellum longitudinal oval, converging toward the anterior angle; posterior border of mesoscutellum smooth, as is also the metanotum. General color yellow-brown, yellow below; scape and pedicel of antennæ brown, flagellar joints yellowish, club brown; all coxæ brown; front femora, tibiæ, and tarsi yellowish white, with a faint brownish patch on the dorsal side of femora and tibiæ; middle femora and tibiæ

yellowish white, each with a median brown annulation, tarsi yellow; hind femora and tibiæ brown, white at base of femora and at base and tip of tibiæ, tarsi yellowish white; wing veins yellowish, dusky at origin of stigmal.

Described from 1 ♀ specimen; ♂ unknown.

Bred, November, 1874. from specimens of *Diaspis rosæ* received from Mrs. Mary Treat, Vineland, N. J. [C. V. R. Coll.]

30. (2) **Aphycus ceroplastis**, n. sp.

Female.—Length, 1.4mm; expanse, 3.3mm; greatest width of fore wing, 0.51mm. Antennal scape with a slight expansion below near tip; club flattened, oval. Mesoscutellum with a slight longitudinal median impression; ovipositor well exserted; ocelli form an acute-angled triangle. Color: Antennal scape yellow, with a black stripe near base and another near tip, including the expansion, and broadest on the outside; basal half of pedicel black, distal half light yellow: funicle brownish at joint 1, each joint growing lighter in color to joint 6, which is yellow; club, dark brown, nearly black, sometimes lighter at tip; head and face yellow, with a large brown spot on each cheek, occiput brown: pronotum black, mesoscutum and axillæ yellow, with a dusky shade towards the pronotal border of the mesoscutum; mesoscutellum black, metanotum also black; tegulæ yellow, dusky at tip; abdomen black above, yellowish beneath, especially near base; ovipositor yellow; the conspicuous shields at the sides of the body (which may possibly be homologized with the epimera of the mesothorax) are shiny black, yellow at bases; all legs yellowish: wings hyaline.

Male.—Length, 1.04mm; expanse, 2.4mm; greatest width of fore wings, 0.42mm. Flagellum of antennæ of a uniform light brown; brown spots on cheeks lacking; mesoscutum and axillæ black: hairs on the abdominal spiracles very conspicuous.

Variety a.—In four ♀'s the marked appearance of the mesonotum, produced by the contrast of the yellow mesoscutum and axillæ with the black mesoscutellum and pronotum, was lost by a black shade in the middle of the mesoscutum, and the axillæ were black as in the ♂.

Described from 8 ♀'s, 2 ♂'s, and 4 ♀'s of variety *a*; all bred from scales of *Ceroplastes artemesiæ* Riley MSS., collected in 1879, on Artemesia, at Silver City, N. Mex., by H. H. Rusby. The parasites issued in the latter part of March. [C. V. R. Coll.]

31. (3) **Aphycus maculipes**, n. sp.

Female.—Length, 1.4mm; wing expanse, 3.00mm; greatest width of fore wing, 0.58mm. In all respects, except in size and details of coloration, similar to *Aph. pulvinariæ*, Howard. The scape, which is greatly widened below, is shining black in color, with a white band at base and a white tip. Pedicel black, lighter towards the lateral portion of the tip. Joints 1, 2, 3, and 4 of the funicle black, the inner surface of 4 sometimes lighter; club dark brown. Face and front rust-red and hairless; ocelli coral-red, placed at the corners of an acute-angled triangle; occiput black nearly to the eyes. Anterior face of pronotum black with light yellow sides and a yellow transverse stripe dorsally; dorsal surface of pronotum of a pale bluish color, with whitish hairs, and furnished at each angle with a distinct round black spot. Tegulæ whitish, dusky at tip. Mesonotum ferruginous; metanotum dusky. Abdomen blackish above, with a yellowish border. Venter uniformly light greenish-yellow; legs all yellowish; all tibiæ with a double row of rather small blackish spots above.

Male.—Length, 1.00mm; wing expanse, 2.8mm; greatest width of fore wing, 0.53mm. Differs from the ♀ principally in the antennæ. In the ♂ antennæ the leaf-like expansion of the scape is not so broad, and its white tip and base are more marked; the distal half of the pedicel is white, but the rest of the antennæ, including flagellar joints 5 and 6 and the club, is of a uniform brown thickly clothed with short griseous hairs; the club is faintly yellowish at tip; and seen in certain lights, there is a yel-

lowish tinge on the ventral sides of joints 5 and 6. The abdomen is very short and its dorsum is black with an orange margin in which the black spiracles show very distinctly, each furnished with a few long black hairs. The legs are semitransparent, with the tibial spots not so strongly marked as in the female.

Described from 2 ♂'s and 2 ♀'s, bred May 7, 1883, from a *Lecanium* on the water-oak (*Q. aquatica*) collected at Bluffton, S. C., by Dr. J. H. Mellichamp. The same Lecanium harbored *Chiloneurus albicornis* Howard, and occurs on *Quercus laurifolia* at Mobile, Ala., where it is parasited by *Comys fusca* Howard.

This species seems to be closely related to *Aphycus punctipes* (Dalm.), though the descriptions of the latter are too meager to form a definite idea of it. Certainly the colored figure by Westwood in Stephens's Illustrations of British Entomology (Supplement, Plate XLVI, Fig. 4) cannot be at all correct as to coloration.

Mr. Ashmead's *Coccophagus annulipes* should also be placed in this genus, and will prove closely related to this species, although I have as yet seen but one mutilated specimen.

Two females of what is probably only a variety of this species, having only the first funicle joint brown, are contained in Dr. Riley's collection, and are said to be parasitic on *Attelabus bipustulatus*. With our knowledge of the habits of the genus we can say with almost perfect certainty that these females were not parasitic upon the Attelabus but upon some unnoticed Lecanium attached to the leaves of which the case of the beetle larva was made. [C. V. R. Coll.]

Genus Bothriothorax Ratzeburg.

Female.—The body is rather broad and flattened. The antennæ arise not far from the border of the mouth; the scape is quite long and not flattened; the pedicel is as long as or longer than the first funicle joint; this last is as long as or longer than thick the club is shorter than the funicle or (with *B. paradoxus*) twice as long. The face is delicately impressed; vertex and clypeus are very broad, and the ocelli form a very obtuse-angled triangle. The thin (antero-posteriorly) broad (laterally) head is very deeply punctured, as are also mesonotum and scutellum; in the center of each puncture is a little papilla, from which springs a delicate little hair; besides this, there is a leather-like sculpture. The mesonotum and scutellum are rather strongly transversely arched, and the lateral borders of the latter are quite sharp. The ovipositor is not at all, or very slightly, extended. The marginal vein of the hyaline wings is very short or is lacking; the stigmal is long and the postmarginal is short, or very short.

Male.—Very similar to the female and only distinguished by the antennæ and by the sparser punctuation of the head. The pedicel is short, somewhat longer than thick; the funicle quite extended, and the joints small and strongly arched beneath, so that the funicle appears somewhat toothed above; most of the joints have two half whorls of long hair; the club is almost as long as the two last funicle joints together.

32 (1) **Bothriothorax virginiensis**, n. sp.

Female.—Length, 1.63mm; wing expanse, 3.96mm; greatest width of fore wing, 0.69mm. Head rather wider than thorax; lower face densely rugose, but not densely punctulate; front and apex densely covered with large, shallow, round punctures; mesonotum punctured in a similar manner. Stigmal vein given off from submarginal just before it reaches costa; postmarginal very short; antennæ regularly clavate; the pedicel is longer than the first funicle joint, which is a little longer than broad; the remaining funicle joints increase in width and slightly in length; club slightly longer than fifth funicle joint. Color, metallic greenish-black; antennæ jet black; all coxæ metallic; all femora metallic, brownish at tip; front and middle tibiæ brownish-yellow; hind tibiæ greenish-black; all tarsi, yellow.

Described from 1 ♀ specimen collected, September 18, 1881, at Arlington, Va. [C. V. R. Coll.]

The European *Bothriothorax clavicornis* is parasitic on the onion maggot, larva of *Anthomyia ceparum*, and hence, from the remarkable uniformity of habit in this subfamily, we should expect to find that *B. virginiensis* is parasitic upon some Anthomyia here. *A. ceparum* has not been found to be parasited, however, in this country.

33. (2.) **Bothriothorax peculiaris**, n. sp.

Female.—Length, 1.75mm; expanse, 4.25mm; greatest width of fore wing, 0.7mm. Antennæ short, joints not well defined; scape not reaching to top of head; pedicel twice as long as thick, longer than first funicle joint; funicle joints subcylindrical, increasing in diameter from 1 to 6; joint 6 as thick as long; club as long as the three preceding joints together, much flattened and sharply truncate at tip in a somewhat oblique line. Fore wings slightly ciliate at tip; hind tibiæ somewhat compressed laterally; mesoscutellum uniformly punctate. General color blue-green; basal half of antennal scape honey-yellow; distal half black above, yellowish below; flagellum black, clothed with short dense black hairs; front femora black, with green luster, yellow at tip middle and hind femora honey-yellow; front and middle tibiæ honey-yellow; hind tibiæ black; all tarsi honey-yellow.

Male.—Same size and proportions as ♀. Antennæ much longer and more slender than with ♀; pedicel twice as long as thick; joint 1 of funicle three times longer than thick and one-third longer than pedicel; the rest of funicle joints subequal in length, about as long as pedicel, well separated and increasing slightly in thickness. Club flattened, truncate, and nearly as long as the two preceding funicle joints together. In coloration similar to ♀, except that the antennæ and front femora are honey-yellow throughout.

Described from 3 ♀'s and 10 ♂'s.

These were all, with two mutilated specimens, bred in November from a single Syrphid larva found on an oak leaf at Arlington, Va. The larva was honeycombed, as are the hosts of Copidosoma, and all of the parasites issued through two holes cut apparently by two of the most enterprising individuals. [Dept. Agr. and C. V. R. Coll.]

The characters of Bothriothorax will have to be revised. Mayr has described the male of *B. clavicornis* only, and while he shows that the ♂ antennæ of this species differ (p. 82), he rejects Foerster's statement that the club of the ♂ antenna has "eine schief gestutzte, fast beilförmige Gestalt," like the ♀. He says, however, that his varying speci-

mens were incomplete in the antennæ and probably lacked the club, as the ♂ of *B. peculiaris*, resembling the varying individuals in all other respects, have the club described by Foerster.

Genus Psilophrys Mayr.

Female.—The very thin and very long antennæ are given off from the neighborhood of the mouth; the long thin scape reaches nearly to the ocelli; the pedicel is usually more than double as long as thick; the long funicle is extremely thin and filiform and its segments are so closely joined that when the funicle is straight the points of division are very indistinct; the first joints are longer than the last; the first is about twice as long as the pedicel, and the sixth, which is the shortest, is still five times as long as thick; the club is slightly thicker than the funicle, and is longer than the sixth funicle joint, but is shorter than the fifth and sixth together; at the end it is obliquely truncate. The head is not thick (antero-posteriorly), but is long, for the cheeks are somewhat longer than the eyes; the head is not so broad as the thorax. The facial groove is narrow but long and extends up between the eyes as far as their middle; the small keel-shaped facial prominence extends as a delicate carina to the end of the facial groove. The front and vertex form a strong rounded angle and are quite broad. The ocelli form an obtuse-angled triangle, the posterior ocelli lying near the eyes and the sharply-cut occipital border. The thorax is strongly arched transversely and from above appears almost barrel-shaped. The pronotum, mesonotum, scapulæ, and scutellum are closely united; the mesonotum is large and as long as the strong transversely-arched triangular scutellum; the points of the scapulæ meet. The abdominal segments are subequal in length, and the ovipositor protrudes slightly. The fore wings are not ciliate (in this respect differing from all other Encyrtinæ except *Bothriothorax schlechtendali*), and when folded reach only a very little beyond the tip of the ovipositor; the stigmal vein is quite long and arises from the juncture of the submarginal with the costa; the marginal is therefore not developed and the postmarginal is short.

Male.—Very like the female, with a smaller head, very delicately ciliate fore wings, and much thicker, shorter, and differently formed antennæ. The pedicel is only slightly longer than thick; the funicle is thick and clothed with short hairs (although longer than with the female); the first funicle joint is also the longest and the sixth the shortest, but this last is only double as long as thick (the funicle joints usually shrink so much after death that they appear compressed); the club is longer than the first funicle joint, and as thick at its base, gradually more slender, with a rounded summit. The first abdominal segment is longer than any of the others.

34. (1) **Psilophrys hyalinipennis**, n. sp.

Male.—Length, 1.51mm; expanse of wings, 3.02mm; greatest width of fore wing, 0.67mm. Resembles much *Ps. longicornis* (Walk.), of Europe, but differs markedly in the clear transparent wings. Color, metallic bluish-green, abdomen shiny black, antennæ brown; all coxæ metallic, all femora and tibæ dark brown, with reddish-yellow knees; tarsi, reddish-yellow, with black terminal joints; wing veins strong, dark brown in color.

Described from 1 ♂ specimen. Habitat, Missouri. [C. V. R. Coll.]

Genus Homalotylus Mayr.

Female.—The antennæ are given off near the border of the mouth; the pedicel is somewhat longer than the first funicle joint; the 6-jointed funicle has cylindrical joints, which increase more or less in thickness toward the club; the club is obliquely truncate from the tip to the base, or nearly to the base. The head is thin (fronto-occipitally): the facial groove is very delicate or is wanting (*H. flaminius*). The eyes are much farther apart below than above. The ocelli form an acute or a right-angled triangle. The face, and especially the clypeus, not broad, covered with very fine and thick punctulations, and with larger punctures in rows or irregularly placed. Mesonotum finely shagreened and moderately shining. The axillæ meet only in a point, or are far apart. The ovipositor is hidden. The hind femora have a longitudinal groove for the reception of the hind tibiæ. The marginal vein is very short, or is wanting. The stigmal is rather long.

Male unknown.

35. (1) **Homalotylus obscurus**, n. sp.

Female.—Length, 1.86^{mm}; wing expanse, 3.8^{mm}; greatest width of fore wing, 0.58^{mm}. Antennal scape, very long and slender; pedicel somewhat more than twice as long as thick; first funicle joint one-third longer than thick; sixth funicle joint a trifle thicker than long; all funicle joints cylindrical, and increasing slightly in thickness and decreasing in length from joint 1 to joint 6; club as long as the preceding three joints together, obliquely truncate from tip quite to base. Facial groove entirely wanting. Ocelli form an acute-angled triangle. The larger punctures of the head are irregularly placed. The axillæ meet at their apices only. First joint of middle tarsus as long as all the succeeding joints together, and only slightly incrassated; middle tibial spur stout, and longer than the first tarsal joint. Color: Antennal scape, pedicel, and funicle black, club yellowish-white; face yellow-brown, with a metallic luster behind the eyes; pronotum and mesoscutum black, with a faint golden luster; mesoscutellum and axillæ dead-black, owing to the very close fine punctures; tegulæ black at tips, brown at bases; metanotum and dorsum of abdomen black; venter of thorax dark honey-yellow, of abdomen black; all coxæ and femora dark brown; all tibæ black; front and hind tarsi black; middle tarsi, except fifth joint and middle tibial spur, white or yellowish-white. Fore wing with a large subcircular dusky spot in the middle, including stigmal and marginal veins, and with a narrow, clear, hairless streak extending transversely and proximally from marginal vein to near the hinder border of the wing; cilia very short.

Described from 13 ♀ specimens bred from Coccinellid larvæ, in all probability those of *Cycloneda sanguinea* L., at Centreville, Fla., by Mr. H. G. Hubbard. From two to five of the parasites were bred from each of the parasited larvæ. [C. V. R. Coll.]

Of the three European species of *Homalotylus*, the only one whose habits are known, *H. flaminius* (Dalman), lives in Coccinellid larvæ; and Walker (Entom. Mag. V, 1838, p. 54) states that he has bred it from *Galeruca calmariensis*, an insect which, though very abundant, has never been found parasited in this country.

Genus Leptomastix Förster.

Female.—The antennæ are very long, as long as or somewhat longer than the body, slender and clothed with short hairs; the pedicel is twice as long as thick; each of

the three first funicle joints is about double the length of the pedicel, and the three following decrease in length until the sixth is scarcely twice as long as thick; the club is slightly broader than the funicle, is rounded on the end, and is as long as the last two funicle joints together. The facial impression is small, and the forehead extends ne ar y the lower end of the eyes; the vertex is broad, and the ocelli are at the corners of an equilateral tria' ' · both clypus and vertex are very finely punctured. The thorax is moderately arched, the mesonotum somewhat shining and finely shagreened with sparse hair follicles; the scapulæ meet in the middle and form a very short longitudinal carina: the triangular, finely wrinkled scutellum has rather sharp side borders and apex. The upper side of the abdomen is very delicately punctured and the segments are difficult to distinguish: seen from the side they appear subequal in length. The marginal vein of the fore wing is somewhat longer than the stigmal, which is nearly equal in length to the postmarginal. The ovipositor is usually considerably protruded. The legs are longer than usual, and the middle tibial spur is very strong and prominent.

Male.—The male is to be principally distinguished by its antennæ, which are considerably longer than the whole body. The relative proportion of the joints is about the same as in the female, except that the pedicel is very conical and only about as long as thick; the funicle joints are well separated by dorsal incisions, and each is very slightly constricted in the middle above; the funicle is furnished with a number of long hairs, which are not arranged in whorls.

This striking genus was founded by Förster in 1852, and in the characterization of the female I have followed Mayr quite closely. Dr. Mayr, however, had before him but one specimen (♀), and as my material is extensive, I have made one or two changes. I have added a description of the male which was unknown to both Förster and Mayr. The genus was founded on antennal characters, but may be recognized at a glance from the length and strength of the middle legs.

36. (1) **Leptomastix dactylopii**, n. sp.

Female.– Length, 1.51^{mm}; expanse, 3.6^{mm}; greatest width of fore wing, 0.6^{mm}. General color honey-yellow, with a slight reddish tinge on the mesonotum; eyes, antennæ (with the exception of a slight ventral yellow streak), occiput, immediately behind the eyes, black; metascutum, posterior margin of pronotum, dorsum of abdomen, dorsal surface of posterior femora, more or less dusky.

Male.—Length, 0.97^{mm}; expanse, 2.65^{mm}; greatest width of fore wing, 0.46^{mm}. In effect darker than female, and quite variable in the amount of black with which the dorsum of the thorax is ornamented. The mesoscutum is always yellow, but the scapulæ are often very dark and the mesoscutellum has often a dark median stripe; the hind tibiæ and tarsi are also dark.

This species is described from many specimens of both sexes bred in October and November, 1884, from *Dactylopius destructor* Comst., infesting Pæonia on the Department grounds at Washington, D. C., in company with *Chiloneurus dactylopii*. It is very similar to *Leptomastix histrio*, judging from Mayr's description of the latter, and the difference may arise from the fact that *histrio* was described from a single speci-

men, while the specimens which I have show considerable colorational variation.*

The appearance of this parasite upon the destructive mealy bug is to be welcomed. A large colony of the latter insect was completely destroyed by this *Leptomastix* and the *Chiloneurus* just mentioned. It is possible that both are recent introductions; at all events, neither has ever been bred from *Dactylopius* here before, and we shall watch for them another season with interest.

Subfamily APHELININÆ.

The two genera mentioned under this subfamily may be separated as follows:

A. Fore wings with a hairless line extending from stigma transversely towards base of wing ..... APHELINUS.
B. Fore wings with no such line ..... COCCOPHAGUS.

Genus COCCOPHAGUS Westwood.

Antennæ 8-jointed; scape rather short and stout; pedicel one-third the length of scape and of about the same thickness; joints 3, 4, and 5 increase very slightly or not at all in thickness and decrease in length; club very plainly 3-jointed, a little longer than the preceding two joints. Mesoscutum large, its posterior broader, with a slight re-entering angle; sutures between parapsides and scapulæ very oblique. Mesoscutellum nearly as long as broad, rounded behind, the fore part forming three sides of a hexagon, the side bordering on the scutum a little shorter than the other two; wings equally hairy, except at base; no hairless line. Stigma small, but plainly visible, subtriangular in form. Middle tibial spur usually not as long as first tarsal joint, often curved. Species usually of somber colors, often of two contrasting colors, black and yellow.

37. (1) **Coccophagus vividus**, n. sp.

Female.—Length, 1.03^{mm}; wing expanse, 1.96^{mm}; greatest width of fore wing, 0.35^{mm}. General color shiny black; antennæ light brown, with the customary dark brown longitudinal carinæ; greater part of mesoscutellum and visible portion of metascutellum bright orange-yellow, the line of juncture of the two colors on the mesoscutellum slightly irregular but not curved; tegulæ yellow; all coxæ and femora brown, yellow at joints; all tibæ and tarsi yellow, occasionally a dusky patch near base of hind tibæ, and the fifth tarsal joint is of course brown. Entire mesonotum finely punctate.

Male.—Length, 0.55^{mm}; wing expanse, 1.47^{mm}; greatest width of fore wing, 0.25^{mm}. Color as in female, except that the tegulæ are brown and the scutellar spot is dull lemon-yellow, as large proportionally as in ♀, but not so vivid.

Described from 1 ♂ and 3 ♀'s bred from *Lecanium hesperidum* on orrange, Crescent City, Fla., by H. G. Hubbard. [Dept. Agr. Coll.]

* Since the above was written I have received from Dr. Mayr the following concerning this species:

"Was nun Ihre letzte Sendung betrifft, so steht Ihr Leptomastix Dactylopii der europäischen Art sehr nahe, und wenn Ihre Exemplare nicht etwa durch unnatürliche Verhältnisse der Zucht im Zimmer besonders klein und unentwickelt geblieben sind, so kann Ihr Leptomastix ganz gut als eigene Art betrachtet werden, wenn auch die Unterschiede nur in der Grösse und Farbung vorhanden sind."

38. (2) **Coccophagus flavifrons**, n. sp.

Male.—Length, 1^{mm}; wing expanse, 2^{mm}; greatest width of fore wing, 0.35^{mm}. Color: Eyes, clypeus, occiput, abdomen, and dorsum of thorax black, with a pronounced bluish-metallic luster on abdomen; face, antennal scape, all legs, except hind tibæ, lemon-yellow; flagellum of antennæ brown; tegulæ orange-yellow; hind tibæ brown, with yellowish extremeties; wing veins fuscous.

Described from 1 ♂ specimen; ♀ unknown; bred, April 6, 1882, from *Lecanium* sp. on *Pinus australis*, collected at Archer, Fla. Two other ♂ specimens, nearly agreeing with this species, but each lacking the head are in the collection. [C. V. R. Coll.]

39. (3) **Coccophagus cognatus** Howard.

One ♂ and 1 ♀ of this species were bred, April 2, 1881, from *Lecanium* sp. upon leaves of *Melia azederach*, collected by Mr. G. W. Latimer, at Eufaula, Ala. [C. V. R. Coll.]

40. (4) **Coccophagus koebelei**, n. sp.

Male.—Length, 0.84^{mm}; wing expanse, 1.59^{mm}; greatest width of fore wing, 0.34^{mm}. Color: Eyes, head, face, tegulæ, all thorax (except tips of meso and metascutelli), and abdomen shiny black; antennæ light brown, scape black; all tibiæ, tarsi (except last joint), and tips of femora lemon-yellow; all tibæ, except at tips, black; tips of meso and metascutelli orange-yellow; the line between the black and the yellow sharp and distinct, and convex posteriorly.

Described from 1 ♂ specimen; ♀ unknown; bred, April 6, 1882, from *Lecanium* sp. on *Pinus australis*, collected at Archer, Fla., by Mr. A. Koebele, to whom the species is dedicated. [C. V. R. Coll.]

Genus APHELINUS Dalman.

Antennæ 8-jointed; scape long and slender; pedicel large, subconical; joints 3 and 4 very small; joint 5 as long as pedicel, subcylindrical; club large, with several minute bristles at tip. Mesoscutum wider than long; parapsides distinctly separated, small. Mesoscutellum very broad and short; subfusiform, unicolorous. Middle tibial spur slender, as long as first tarsal joint. Fore wings each with an oblique hairless line extending from the stigma backwards to the posterior border of the wing. Stigma small and inconspicuous, club-shaped, rounded at tip. Species generally unicolorous, either yellow or blackish, very seldom metallic.

41. (1) **Aphelinus diaspidis** Howard.

Nine females of this species were bred from a *Mytilaspis* on an Orchid, an undetermined species of *Dycaste* from Japan; received February 6, 1874, from Mr. George Thurber, of the American Agriculturist. [C. V. R. Coll.]

42. (2) **Aphelinus mali** (Haldeman.)

Three ♀'s of this species were bred at Washington, February 8 and 15, 1879, from *Schizoneura lanigera* Hausm. [C. V. R. Coll.]

Subfamily ELACHISTINÆ.

The two genera mentioned under this subfamily may be separated as follows:

A. Posterior tibiæ with two spurs.....EUPLECTRUS.
B. Posterior tibiæ one-spurred.....ELACHISTUS.

Genus EUPLECTRUS Westwood.

Head triangular; eyes prominent. Antennæ inserted below middle of face; scape long; funicle 4-jointed. Thorax highly developed; mesonotum with a median longitudinal carina. Abdomen with a moderate, cylindrical petiole. Posterior tibiæ with two very long spurs. Body not metallic, but of dark color; head and thorax with sparse, coarse hairs.

43. (1) **Euplectrus comstockii** Howard.

Male.—Length, 1.98mm; wing expanse, 4.3mm; greatest width of fore wing, 0.8mm. Face triangular, narrowing sharply below eyes, smooth and glistening, with a very few punctures; antennal scape slender, not widened. Pronotum very rugose, except at posterior border; mesoscutum somewhat transversely rugose, with a strongly-marked median longitudinal carina; mesoscutellum smooth; metathoracic carina very pronounced and dividing posteriorly; metatibial spine nearly as long as first two tarsal joints. Abdomen broadening from base and subtruncate at tip. General color shining black with long stiff whitish hairs scattered over thorax; labrum honey-yellow; antennal scape light honey yellow, flagellum gradually darker, club quite dark at tip; all legs honey-yellow; abdomen with a dorsal yellow spot entirely bounded with black and of an irregular pyramidal shape, the base of the pyramid towards tip of abdomen; venter yellow-brown along median line

Female.—Slightly larger; abdomen more nearly ovate.

Described from many ♂ ♀ specimens bred from half-grown larvæ of *Aletia xylina* (Say) in Mississippi, Alabama, and Florida. [C. V. R. and Dept. Agr. Coll.]

(See Report Department of Agriculture, 1880, Plate II, Fig. 4. See also Can. Ent., XII, p. 159, and Am. Naturalist, 1881, p. 16.)

44. (2) **Euplectrus leucotrophis**, n. sp.

Male.—Length, 1.25mm; wing expanse, 2.91mm; greatest width of fore wing, 0.58mm. Differs from *E. comstockii* in the following points: Mesoscutum very rugose; median carina scarcely visible; face, below eyes, and scape of antennæ nearly white, slightly yellowish; all legs, including coxæ, semi-transparent, whitish in color; the dorsal abdominal yellow spot extends to pedicel, and at its base widens out to include the lateral borders of the abdomen; the venter is yellowish near base; elsewhere dark brown, nearly black.

Described from 3 ♂ specimens bred from unknown Arctiid larva, July 19, 1880, received from Dr. R. S. Turner, Fort George, Fla. [Dept. Agr. Coll.]

45. (3) **Euplectrus platyhypenæ**, n. sp.

Female.—Length, 1.67mm; wing expanse, 3.8mm; greatest width of fore wing, 0.6mm. Differs from *E. comstockii* as follows: Pronotum markedly shagreened; mesoscutum only slightly roughened; median carina distinctly visible; hind border of abdomen well rounded. Color: Face entirely black; legs dark honey-yellow; hind coxæ

quite dark at bases; yellow blotch on dorsum of abdomen, occupying nearly its whole surface, leaving only a narrow band of black around the edge; venter the same.

Male.—Rather smaller than the ♀, but agrees otherwise, except that the scape of the antennæ has a ventral leaf-like expansion; the abdomen is even more rounded than in the ♀, and the yellow blotch is much smaller.

Described from 1 ♂ and 1 ♀ bred, July 11, 1882, from the larva of *Platyhypena scabra* (F.), District of Columbia. [C. V. R. Coll.]

46. (4) **Euplectrus catocalæ**, n. sp.

Length, 2.3^{mm}; expanse of wings, 4.3^{mm}; greatest width of fore wing, 0.7^{mm}. Differs from *E. comstockii* in its larger size, more rounded abdomen, and in the appearance of the abdominal blotch. This in the ♂ occupies the whole of the anterior half of the dorsum of the abdomen, while the venter is entirely yellow except at tip. With the ♀ the spot occupies the anterior center of the dorsum of the abdomen, is oval in form, and is bounded on all sides by a broad margin of dark brown; the venter is as with the ♂. The metascutellum is finely striated longitudinally. The yellow spot on the lower front extends to the base of the antennæ.

Described from 3 ♂'s and 2 ♀'s bred, July 5, 1873, from the larva of a species of *Catocala* at Saint Louis, Mo. [C. V. R. Coll.] This species has also been bred from a geometrid larva on birch, found at Hyattsville, Md., July 9, 1882. [Dept. Agr. Coll.]

47. (5) **Euplectrus frontalis**, n. sp.

Female.—Length, 2^{mm}; wing expanse, 4.7^{mm}; greatest width of fore wing, 0.81^{mm}. In this species the sculpture of the thorax is more definite than in any other so far considered. The pronotum is deeply but sparsely punctuate except at its posterior border; the mesoscutum is quite coarsely shagreened, and its median carina is faint: the metascutellum is plainly longitudinally striate. The yellow spot of the lower front includes the bases of the antennæ, but the cheeks below this point are black to the bases of the mandibles. In other respects it resembles *E. catocalæ*.

Described from 1 ♀, bred, September 13, 1882, from an unknown noctuid larva on walnut, collected at Arlington, Va. [C. V. R. Coll.]

Genus Elachistus Spinola.

Antennæ inserted considerably below the middle of the face, flagellum very rarely incrassate; funicle 4-jointed; club 2-jointed. Thorax with a large conico-semiglobose pronotum; mesoscutum short; mesoscutellum with two longitudinal grooves, meeting at the apex; metanotal median carina acute. Fore wings with the postmarginal vein plainly longer than the stigmal; stigmal club small but with an acute unens. Abdomen usually with a short smooth petiole. Posterior tibiæ 1-spurred. Body black, immaculate; head always more or less metallic.

48. (1.) **Elachistus proteoteratis**, n. sp.

Female.—Length, 1.86^{mm}; wing expanse, 3.12^{mm}; greatest width of fore wing 0.53^{mm}. Head broadly oval, cheeks well rounded, antennal fossæ converging dorsally; the sutures of the mesoscutar parapsides and of the scapulæ are continuous; the postmarginal vein is rather longer than the stigmal, which is very straight, with a small club and a sharp claw. Face smooth; occiput and top of head near eyes slightly punctulate; pronotum sparsely punctured, except at its smooth posterior border; mesoscutum transversely shagreened; mesoscutellum very finely coriaceous; meta and post-

scutelli smooth; metathoracic carina delicate; petiole rather short, cylindrical, and rugose; abdomen elliptical, concave above, convex below. Pronotum and mesoscutum with many white hairs; a longitudinal row of long delicate white hairs on the metapleura of each side. Color, dark metallic-green; scape of antennæ nearly white, flagellum, light ochre-yellow; mouth parts nearly white, mandibles shining brown at tips; all legs yellowish-white, except hind coxæ, which are brownish near base; basal half of abdomen above with a bright straw-colored blotch, bounded by brown and ending posteriorly in a straight transverse line; venter of abdomen with a longitudinal honey-yellow stripe, wider anteriorly than posteriorly.

Described from 3 ♀'s bred, in June, 1873, from larvæ of *Proteoteras æsculana* Riley, at Kirkwood, Mo. [C. V. R. Coll.]

49. (2) **Elachistus cacœciæ**, n. sp.

Male.—Length, 1.93mm; wing expanse, 3.84mm; greatest width of fore wing, 0.74mm. Face subtriangular, cheeks nearly straight; mesoscutar and scutellar furrows not continuous, interrupted by the angle of the scapulæ; postmarginal vein much longer than stigmal. Head and eyes quite thickly covered with short, fine, dusky hairs, pronotum and mesoscutum furnished with longer and stouter dark hairs. Head sparsely punctured with transverse oblique lines on vertex and clypeus; occiput very finely and thickly punctured; scutellum smooth, and mesoscutum only slightly shagreened. Color shining black, not metallic; scape of antennæ whitish below, dark brown above, flagellum dark brown, with short, dense, whitish hairs; mandibles light reddish-brown; all legs yellowish-white, hind coxæ slightly darker at base; first two joints of abdomen above with a yellowish-brown spot extending nearly to lateral edges, venter light brown at base.

Described from 6 ♂'s bred, August, 1877, from the leaf curl of *Cacœcia rosaceana* (Harr.), at Kirkwood, Mo. [C. V. R. Coll.] One ♀ specimen of apparently the same species was bred at Washington, from *Hyphantria textor*, upon which it fed externally. The adult made its appearance October 29, 1881. [Dept. Agr. Coll.]

50. (3) **Elachistus coxalis**, n. sp.

Female.—Length, 2.21mm; wing expanse, 4.34mm; greatest width of fore wing, 0.7mm. Resembles *E. proteoteratis* very closely, but differs in size, as just indicated, and also presents the following colorational differences: The posterior coxæ have upon their outer basal portion a large definite metallic-green spot, which in *proteoteratis* is only faintly indicated; the middle coxæ are also faintly green at base; superior surface of antennal pedicel tinged with dark brown, superior portion of all the flagellar joints darker than inferior surface; metapleural hairs long and conspicuous; ventral yellow stripe very narrow near tip of abdomen.

Described from 1 ♀ caught on window at Washington, D. C., January 14, 1881. [C. V. R. Coll.]

Subfamily ELASMINÆ.

Head subglobose: front sparingly but strongly punctate. Funicle of antennæ 3-jointed. Thorax: Pronotum short, parapsides not distinguishable, mesoscutellum depressed, metascutellum membraneous white. Wings narrow, marginal vein long, stigmal very short, almost punctiform, postmarginal distinct. Abdomen sessile, with a compressed venter. Legs becoming gradually longer and stronger; posterior coxæ very large, tibiæ 2-spurred at tip. Antennæ of the male with three branches.

Genus ELASMUS Westwood.

Head, antero-posteriorly rather narrow, vertex subacute, eyes suboval, ocelli placed in a triangle. Antennæ inserted below the middle of the face, scape not reaching to ocelli, flagellum not incrassate. Thorax with obsolete punctures, sutures of the scutellum delicate, metathorax with no carina, apex not perpendicular. Costa of the wings shorter than the marginal, costal cell very narrow. Abdomen triangular, terebra scarcely observable. Posterior tibiæ spinous underneath. Mesosternum smooth. Epistoma not distinguishable, epimera nearly triangular. Body black, metallic above.

Thomson in his remarks after the generic diagnosis of *Elasmus* says, "Arterna lefva parasitiskt på Microgaster"—a general statement. Ratzeburg, however, gives *Aneure rhipiceros* Först. as parasitic on *Psyche graminella;* Giraud gives *E. flabellatus* Westw., as parasitic on the same species and on *Epichnopteryx helix*, and *E. nudus* Nees, as destroying *Cecidomyia rosaria.* Of the following species all are represented in notes as having been bred from Tineid larvæ except *E. albicoxa*, which was found in a jar with the eggs of *Limnitis dissippus*, from which it could not possibly have come. Microgasters were bred from the young larvæ of *L. dissippus*, and, in default of careful notes, it is very possible that the specimen of *E. albicoxa* may have come from one of the Microgaster cocoons. In the same way Microgasters were bred from the Tineids on Rhus and Apple, from which *E. varius* and *E. pullatus* are stated in the notes to have been bred, and the mere entry in the note-book will not weigh against a unity of habit in the genus if such can be shown to be probable. Thomson does not give his data, but the fact that Microgasters were bred in the cases mentioned would have seemed to afford a strong probability of such an unity of habit, had it not been that the last species of the genus, *E. tischeriæ*, was bred under my eyes, and watched with the desire to determine this point in mind. Not only was no Microgaster observed, but the *Elasmus* larvæ was several times found feeding externally, just prior to pupation, upon the larvæ of the Tischeria. This observation will transfer *Elasmus* from the ranks of injurious insects to those of beneficial.

51. (1) **Elasmus varius**, n. sp.

Male.—Length, 1.75^{mm}; wing expanse, 3.30^{mm}; greatest width of fore wing, 0.33^{mm}. Head coarsely and densely punctate, the impressions more sparse upon the face. Mesonotum covered with long delicate hairs, and appearing as if covered with minute overlapping scales. Scutellum apparently smooth, but, under a high power, covered with fine wavy lines, and furnished near base with hairs. Abdomen long, slender, acuminate, furnished at tip with a number of stiff black hairs. General color shining black; rounded tip of metascutellum orange-yellow; metascutellar appendage* membranous white, rest of metanotum metallic-green; first abdominal joint dorsally, striped with two transverse shaded bands of ochre-yellow; venter of abdomen ochre-yellow except at tip; front coxæ black at base, remainder brownish-yellow; femora brown-

* "Das schildchen hat an der Spitze einen häutigen, drieckigen, ziemlich scharf zugespitzten, lamellenartigen Anhang." (Förster Hymenopt. Stud. II, p. 71.)

ish-yellow, shaded dorsally with brown; tibiæ yellow; tarsi fuscous; middle coxæ black at base, rest brownish-yellow; femora black with metallic luster, and with a ventral longitudinal yellow line; tibiæ yellowish, with a dorsal dusky streak; tarsi dark fuscous; hind coxæ and femora shining black, light at joints; tibiæ dirty yellow, lined dorsally with brown; tarsi blackish; antennæ black with light hairs; wing veins dark brown.

Described from 4 ♂ specimens (♀ unknown) bred, July 20, 1872, at Saint Louis, Mo., from the leaf curl of a miner and roller on *Rhus copallina*, probably *Gracillaria rhoifoliella* Cham. [C. V. R. Coll.]

52. (2) **Elasmus nigripes**, n. sp.

Male.—Length, 1.58mm; wing expanse, 2.91mm; greatest width of fore wing, 0.27mm. Differs from *E. varius* in size and relative width of fore wing. The scutellar spot is small and narrow, and is not of so vivid an orange color as in *E. varius*. The front coxæ are black, femora and tibiæ earthy yellow, with many black hairs, which on the femora obscure the real color; tarsi dusky; middle and hind coxæ, femora, tibiæ and tarsi nearly black.

Described from 1 ♂ (♀ unknown) bred, from *Lithocolletis gregariella* Murtfeldt, at Kirkwood, Mo., by Miss Murtfeldt, 1881. [C. V. R. Coll.]

53. (3) **Elasmus albicoxa**, n. sp.

Male.—Length, 2.00mm (?); wing expanse, 4.28mm; greatest width of fore wing, 0.48mm. The specimen from which this description is drawn has lost its abdomen, but the other characters are sufficiently marked to found a species. It differs from the preceding species in the following points: The front is coarsely and sparsely punctured, but the punctures are more evenly distributed than in *E. varius*, extending down upon the face. The scutellar spot is broad and includes the tip of the mesoscutellum as well as the metascutellum. The leg coloration is as follows: Front coxæ nearly pure white, slightly tinged with brownish just at base; femora yellowish-white, with a longitudinal streak of brown on the dorsal outer side; tibiæ tinged with brown, tarsi dusky; proximal half of dorsal surface of middle and hind coxæ shiny black, rest white; femora yellowish-white, with a longitudinal blackish streak; tibiæ whitish, with fine brown longitudinal lines; tarsi nearly black.

Described from 1 ♂ (♀ unknown) found in jar with eggs of *Limenitis dissippus* Godt., at Kirkwood, Mo., 1871 (?). [C. V. R. Coll.]

54. (4) **Elasmus pullatus**, n. sp.

Male.—Length, 1.39mm; wing expanse, 3.49mm; greatest width of fore wing, 0.46mm. Entire surface of body shining black in color, except the antennal pits and the immediate region of the mouth parts, which are honey-yellow; all coxæ and femora black, except that the femora are tipped with yellow-brown; anterior tibiæ yellowish; tarsi dusky; middle and hind tibiæ yellow-brown at tip; tarsi dark.

Described from 1 ♂ (♀ unknown); bred from Tineid leaf miner on apple (*Tischeria malifoliella ?*) at Kirkwood, Mo., April 1, 1871. [C. V. R. Coll.]

55. (5) **Elasmus tischeriæ**, n. sp.

Female.—Dimensions the same as with *E. varius*. Differs from this species in the following respects: Head less densely punctate and mesonotum more markedly scaly in appearance. Scape of antennæ light yellow. Metanotum and base of first joint of abdomen metallic-green. Abdomen with a continuous longitudinal dorsal black stripe, which widens on the last segment and includes the ovipositor; remainder of

the abdomen honey yellow. Front coxæ dirty white, tibiæ and tarsi the same; middle and hind coxæ nearly black, honey-yellow at either end. Wing veins slightly dusky, not dark brown.

Described from 10 ♀ specimens (♂ unknown) bred from larvæ of *Tischeria solidaginifoliella* mining leaves of Solidago in District of Columbia and Northern Virginia. The adult parasites issued August 16, 17, and 19, 1884. [Dept. Agr. and C. V. R. Coll.]

LIST OF HOSTS AND PARASITES.

LEPIDOPTERA.

Aletia xylina	*Chalcis ovata.* *Euplectrus comstockii.*
Antheræa polyphemus	*Spilochalcis mariæ.*
Apatura clyton	*Chalcis ovata.*
Arctiid larva (unknown)	*Euplectrus leucotrophis.*
Attacus cynthia	*Spilochalcis mariæ.*
Botis alnialis	*Chalcis ovata.*
Bucculatrix pomifoliella	*Encyrtus bucculatricis.* *Cirrospilus flavicinctus.*
Bucculatrix n. sp. on Oak	*Encyrtus bucculatricis.*
Cacœcia rosaceana	*Chalcis ovata.* *Elachistus cacœciæ.*
Callosamia promethia	*Spilochalcis mariæ.*
Catocala sp	*Euplectrus catocalæ.*
Celæna renigera	*Copidosoma celænæ.*
Desmia maculalis	*Chalcis ovata.*
Gelechia gallæ-asterella	*Copidosoma intermedium.*
gallæ-solidaginis	*Copidosoma gelechiæ.* *Chalcis ovata.*
pseudacaciella	*Copidosoma vagum.*
Gracillaria rhoifoliella	*Elasmus varius.*
Lagoa opercularis	*Chalcis robusta.*
Lithocolletis gregariella	*Elasmus nigripes.*
Papilio cresphontes	*Chalcis robusta.*
Platyhypena scabra	*Euplectrus platyhypenæ.*
Proteoteras æsculana	*Elachistus proteoteratis.*
Samia cecropia	*Spilochalcis mariæ.*
Thyridopteryx ephemeræformis	*Chalcis ovata.* *Spilochalcis mariæ.*
Tischeria malifoliella	*Elasmus pullatus.*
solidaginifoliella	*Elasmus tischeriæ.*

HEMIPTERA.

Aspidiotus subcorticis	*Encyrtus cusifer.*
Ceroplastes artemesiæ	*Aphycus ceroplastis.*
Dactylopius destructor	*Chiloneurus dactylopii.* *Leptomastix dactylopii.*
Diaspis rosæ	*Aphycus brunneus.*
Lecanium hesperidum	*Coccophagus viridus.*
Lecanium sp. on Scotch pine	*Chiloneurus dubius.*
Lecanium sp. on Quercus aquatica	*Chiloneurus albicornis.* *Aphycus maculipes.* *Comys fusca.*

Lecanium sp. on Pinus australis	*Encyrtus sublestus.* *Coccophagus flavifrons.* *Coccophagus koebelei.*
Lecanium sp. on Melia azederach	*Coccophagus cognatus.*
Mytilaspis sp. on Dycaste sp	*Aphelinus diaspidis.*
Pachypsylla celtidis-gemma	*Encyrtus pachypsyllæ.*
Schizoneura lanigera	*Aphelinus mali.*
Trioza diospyri	*Encyrtus trioziphagus.*
Trioza magnoliæ	*Encyrtus solus.*

COLEOPTERA.

Cycloneda sanguinea	*Homalotylus obscurus.*
Odontota scutellaris	*Spilochalcis odontotæ.*

HYMENOPTERA.

Pezomachus minimus	*Spilochalcis albifrons.*

DIPTERA.

Cecidomyia salicis-siliqua	*Encyrtus cecidomyiæ.*
Syrphid larva on oak	*Bothriothorax peculiaris.*
Tachina sp	*Chalcis tachinæ.*

LIST OF THE DESCRIBED NORTH AMERICAN SPECIES OF THE FAMILY CHALCIDIDÆ.

Family CHALCIDIDÆ.

Subfamily LEUCOSPINÆ.

Genus LEUCOSPIS Fabr.

AFFINIS *Say;* Leconte's Edition of Say's Writings, i, p. 220. Pennsylvania.

APICALIS *Cresson;* Transactions of the American Entomological Society, iv (1872–'73), p. 30. Mexico.

AZTECA *Cresson; ibid.*, p. 33. Mexico.

BASALIS *Klug;* MSS., *Westw.*, Germar's Zeitschrift für Entomologie, i, p. 264, North America.

BULBIVENTRIS *Cresson;* Transactions of the American Entomological Society, iv (1872–'73), p. 29. Mexico.

DUBIOSA *Cresson; ibid.*, p. 34. Mexico.

FRATERNA *Say;* Leconte's Edition of Say's Writings, ii, p. 718. Indiana.

INTEGRA *Haldeman;* Proceedings Academy of Natural Sciences, Philadelphia, 2, p. 53. Pennsylvania.

KLUGII *Westwood;* Germar's Zeitschrift für Entomologie, i, p. 249; tab. 3, fig. 1. Mexico.

MEXICANA *Walker;* Journal of Entomology, i, p. 20. Mexico.

POEYI *Guérin;* Iconographie du Règne Animal, iii, p. 414. Cuba.

SHUCKARDI *Westwood;* Entomological Magazine, ii, p. 213. North America.

SUBNOTATA *Westwood; ibid.*, p. 215. Nova Scotia.

SUMICHRASTII *Cresson;* Transactions of the American Entomological Society, iv (1872–'73), p. 31. Mexico.

TEXANA *Cresson; ibid.*, p. 31. Texas.

TOLTECA *Cresson; ibid.*, p. 34. Mexico.

Subfamily CHALCIDINÆ.

Genus SMICRA Spinola.

ABDOMINALIS *Walker;* Journal of Entomology, i, p. 177. Mexico.

ALBIFRONS (*Walsh*); Insects Injurious to Vegetation in Illinois, p. 37, fig. 8. Illinois.

AMBIGUA *Cresson;* Transactions of the American Entomological Society, iv, p. 44. Mexico.

AMOENA (*Say*); Leconte's Edition of Say's Writings, ii, p. 719. Indiana.

AMPYX *Walker;* Annals and Magazine of Natural History, 2d ser., 5, p. 129. West Indies.

ARCANA *Cresson;* Transactions American Entomological Society, iv, p. 44. Delaware.

AZTECA *Cresson; ibid.*, p. 51. Mexico.

BARBARA *Cresson; ibid.*, p. 47. Texas.

BIOCULATA *Cresson; ibid.*, p. 43. Texas.

BRACATA *Cresson; ibid.*, p. 46. Massachusetts.

CANADENSIS *Cresson; ibid.*, p. 39. Canada.

CAPTIVA *Smith;* Transactions of the Entomological Society of London, 3d ser., i, p. 42. Panama.

CARDINALIS *Cameron;* Biologia Centrali-Americana, Part xxviii, February, 1884, p. 84 (Tab. v, Fig. 5). Bugaba, Panama.

CENTRALIS *Cameron; ibid.*, p. 89 (Tab. v, Fig. 6). Presidio, Mexico.

CHAMPIONI *Cameron; ibid.*, Part xxvii, December, 1883, p. 80 (Tab. v, Fig. 1). Bugaba, Panama.

COCCINATA *Cresson;* Transactions American Entomological Society, iv, p. 48. Mexico.

COCCINEA *Cresson;* Proceedings Entomological Society of Philadelphia, iv (1865), p. 91. Cuba.

COMPACTILIS *Cresson;* Transactions American Entomological Society, iv, p. 50. Mexico.

CONJUNGENS *Walker;* Notes on Chalcidiæ, Part iii (1871), p. 53. Mexico.

COXALIS *Cresson;* Transactions American Entomological Society, iv, p. 45. Delaware.

DEBILIS *Say;* Leconte's Edition of Say's Writings, ii, p. 720. Indiana.

DECEM-PUNCTATA *Ashmead;* Transactions American Entomological Society, ix (1882), p. xxix. Florida.

DELICATA *Cresson;* Transactions American Entomological Society, iv, p. 54. Texas.

DELIRA *Cresson; ibid.*, p. 41. Texas.

DELUMBIS *Cresson; ibid.*, p. 40. Massachusetts; Delaware.

DIMIDIATA *Sichel;* Annales de la Société Entomologique de France, 4th ser., v, p. 390. Mexico.

DIVISA *Walker;* Journal of Entomology, i, p. 178. Mexico.

DORSATA *Cresson;* Transactions of the American Entomological Society, iv, p. 49. Texas.

DORSIMACULATA *Cameron;* Biologia Centrali-Americana, Part xxviii, February, 1884, p. 95. Guatemala.

DORSIVITTATA *Cameron; ibid.*, p. 90 (Tab. v, Fig. 2). Panama.

ENCAUSTA *Cresson; ibid.*, p. 46. Colorado.

ERYTHRINA *Walker;* Journal of Entomology, i, p. 179. Mexico.

EUBULE *Poey*, MSS., *Cresson;* Proceedings Entomological Society, Philadelphia, iv (1865), p. 93. Cuba.

EXORNATA *Cresson;* Transactions American Entomological Society, iv, p. 50. Mexico.

FERRUGINEA *Cameron;* Biologia Centrali-Americana, Part xxviii, February, 1884, p. 84. Guatemala.

FIDIUS *Walker;* Annals and Magazine of Natural History, 2d ser., 5, p. 129. West Indies.

FLAMMEOLA *Cresson;* Transactions American Entomological Society, iv, p. 48. Mexico.

FLAVOPICTA *Cresson;* Proceedings Entomological Society, Philadelphia, iv (1865), p 99. Cuba.

FLEBILIS *Cresson;* Transactions American Entomological Society, iv, p. 39. Massachusetts.

FULVESCENS *Walker;* Entomological Magazine, ii, p. 25. North America.

FULVO-MACULATA *Cameron;* Biologia Centrali-Americana, Part xxviii, February, 1884, p. 93. Bugaba, Panama.

FULVO-VARIEGATA *Cameron; ibid.*, p. 92. Presidio, Mexico.

GENICULATA *Cameron; ibid.*, p. 87 (Tab. v, Fig. 4). Presidio, Mexico.

GIGANTEA *Ashmead;* Canadian Entomologist, xiii (1881), p. 90. Florida.

GUNDLACHII *Cresson;* Proceedings Entomological Society, Philadelphia, iv (1865), p. 93. Cuba.

IGNEA *Cresson; ibid.*, p. 92. Cuba.

IMMACULATA *Cresson; ibid.*, p. 97. Cuba.

INTERMEDIA *Cresson; ibid.*, p, 92. Cuba.

JUXTA *Cresson;* Transactions American Entomological Society, iv, p. 54. Mexico.

LAMYRUS *Walker;* The Entomologist (1841), p. 337. Mexico.

LAUTA *Cresson;* Transactions American Entomological Society, iv, p. 45. Mexico.

LECTA *Cresson; ibid.*, p. 44. Mexico.

LENTA *Cresson; ibid.*, p. 52. Mexico.

MACULATA (*Fabricius*); Systema Entomologiæ, ii, p. 198. New York (Walker).

MACULICOLLIS *Cameron;* Biologia Centrali-Americana, Pt. xxviii, Febr., 1884, p. 88 (Tab. v, fig. 7). Chiriqui, Panama.

MACULIPENNIS *Cameron; ibid.*, p. 92. Chiriqui, Panama.

MARIÆ (*Riley*); American Entomologist, ii, p. 101 (Febr., 1870). United States, east of the Mississippi.

MENDICA *Cresson;* Transactions American Entomological Society, iv, p. 41. Mexico.

MEXICANA *Cresson; ibid.*, p. 42. Mexico.

MINIATA *Cameron;* Biologia Centrali-Americana, Pt. xxviii, Febr., 1884, p. 85. Nicaragua; Guatemala.

MIRABILIS *Cresson; ibid.*, p. 53. Georgia; Texas.

MIRANDA *Cresson; ibid.*, p. 49. Mexico.

MISSOURIENSIS (*Howard*); *ante*, p. 6. Saint. Louis, Mo. (*Spilochalcis.*)

MONTEZUMA *Cresson;* Transactions American Entomological Society, iv, p. 51. Mexico.

NIGRICORNIS (*Fabricius*); Systema Entomologiæ, suppl., p. 243. North America.

NIGRIFEX *Walker;* Entomological Magazine, ii, p. 22. Georgia.

NIGRIFRONS *Cameron;* Biologia Centrali-Americana, Pt. xxviii, Febr., 1884, p. 91 (Tab. v, fig. 9). Bugaba, Panama.

NIGRIVENTRIS *Cameron; ibid.*, p. 96 (Tab. xiv, fig. 14, 14*a*). Chiriqui, Panama.

NIGROMACULATA *Cameron; ibid.*, p. 83 (Tab. iv, fig. 15, *a*, *b*). San Gerónimo.

NIGROPICTA *Cresson;* Proceedings Entomological Society, Philadelphia, iv (1865), p. 94. Cuba.

NORTONII *Cresson;* Transactions American Entomological Society, iv, p. 45. District of Columbia.

OBTUSIVENTRIS *Cameron;* Biologia Centrali-Americana, Pt. xxviii, Febr., 1884, p. 93. Presidio, Mexico.

OCTODENTATA *Cameron; ibid.*, p. 82. Presidio, Mexico.

OCTOMACULATA *Cameron; ibid.*, p. 88 (Tab. v, fig. 8). Bugaba, Panama.

ODONTOTÆ (*Howard*); *ante.* p. 7. District of Columbia. (*Spilochalcis.*)

PANAMENSIS *Cameron;* Biologia Centrali-Americana, Pt. xxviii, Febr., 1884, p. 90 (Tab. v, fig. 3). Bugaba, Panama.

PALLENS *Cresson;* Proceedings Entomological Society, Philadelphia, iv (1865), p. 96. Cuba.

PETIOLATA *Cresson; ibid.*, p. 97. Cuba.

PETIOLIVENTRIS *Cameron;* Biologia Centrali-Americana, Pt. xxviii, Febr., 1884, p. 95. Guatemala.

POMPILIOIDES *Walker;* Notes on Chalcidiæ, Part III, 1871, p. 53. Mexico.

PRATINAS *Walker;* Annals and Magazine of Natural History, 2d ser., 5, p. 130. West Indies.

PULCHRA *Cresson;* Proceedings Entomological Society, Philadelphia, iv (1865), p. 94. Cuba.

PUNCTATA (*Fabricius*); Systema Entomologiæ, ii, p. 196. West Indies; Mexico.

PYLAS *Walker;* The Entomologist (1841), p. 337. Mexico.

QUADRIDENTATA *Cameron;* Biologia Centrali-Americana, Pt. xxvii, Dec., 1883, p. 79. Guatemala.

RUFOFEMORATA *Cresson;* Transactions American Entomological Society, iv, p. 39. Texas.

SANGUINIVENTRIS *Cresson; ibid.*, p. 43. Texas.

SCUTELLARIS *Sichel;* Annales de la Société Entomologique de France, 5th ser., iv. p. 59. Mexico.

SEXDENTATA *Cameron;* Biologia Centrali-Americana, Pt. xxviii, Febr., 1884, p. 81. Presidio, Mexico.

SIDE *Walker;* Annales de la Société Entomologique de France, 2d ser., i, p. 145. Florida.

SUBOBSOLETA *Cresson;* Transactions American Entomological Society, iv, p. 42. Texas.

SUBPUNCTATA *Walker;* Entomological Magazine, ii, p. 25. Saint Vincent.

TENEBROSA *Walker;* Journal of Entomology, i, p. 181. Mexico.

TOLTECA *Cresson;* Transactions American Entomological Society, iv, p. 53. Mexico.

TOLUCA *Cresson; ibid.*, p. 42. Mexico.

TORVINA *Cresson; ibid.*, p. 40. Massachusetts, Connecticut, Illinois, Texas, Missouri, Virginia.

TRANSITIVA *Walker;* Transactions Entomological Society, London, 3d ser., i, p. 371. East Florida.

TRITUBERCULATA *Cameron;* Biologia Centrali-Americana, Pt. xxviii, Febr., 1884, p. 85. Panama; Guatemala.

VIRENS (*Howard*); *ante*, p. 6. Iowa. (*Spilochalcis.*)

Genus CHALCIS Fabr.

AMOENA *Say;* Leconte's Edition of Say's Writings, ii, p. 719. Indiana.

ANNULIPES *Walker;* Entomological Magazine, ii, p. 29. Saint Vincent.

COLORADENSIS *Cresson;* Transactions American Entomological Society, iv, p. 60. Colorado.

COLUMBIANA *Howard*; *ante.*, p. 8. District of Columbia.

COMITATOR *Walker;* Transactions Entomological Society of London, 3d ser., i, p. 350. Mexico.

COMPACTA *Walker;* Journal of Entomology, i, p. 183. Mexico.

DEBELIS *Say;* Leconte's Edition of Say's Writings, ii, p. 720. Indiana.

INCERTA *Cresson;* Proceedings Entomological Society, Philadelphia, iv (1865) p. 101. Cuba.

LASNIERII *Guérin;* Iconographie du Régnè Animal, iii, p. 412; tab. 67, fig. 4. Cuba.

MICROGASTER *Say;* Leconte's Edition of Say's Writings, i, p. 219. Pennsylvania.

MINUTA *Fabricius;* Systema Entomologiæ, ii, p. 195. Georgia.

PEDALIS *Cresson;* Transactions American Entomological Society, iv, p. 60. Texas.

PENDATOR *Walker;* Transactions Entomological Society of London, 3d ser., i, p. 351. San Domingo.

OCTO-NOTATA *Harris;* Catalogue of the Insects of Massachusetts, 2d ed. Massachusetts.

OVATA *Say;* Leconte's Edition of Say's Writings, i, p. 219. Eastern United States.

PUBESCENS *Walker;* Notes on Chalcidiæ, iii, p. 47. Mexico.

RESTITUA *Walker;* Transactions Entomological Society of London, 3d ser., i, p. 351. Jamaica.

ROBUSTA *Cresson;* Proceedings Entomological Society, Philadelphia, iv (1865), p. 101. Cuba; Florida.

TACHINÆ *Howard; ante*, p. 8. New Hampshire.

TEGULARIS *Cresson;* Transactions American Entomological Society, iv, p. 60. Texas.

Genus HALTICHELLA Spinola.

AMERICANA *Howard; ante.* p. 9. Virginia.

CRASSICAUDA (*Sichel*); Annales de la Société Entomologique de France, Ser. 4, iv, p. 377 (Tab. 10, fig. 1). (*Phasgonophora.*)

INSULARIS (*Cresson*); Proceedings Entomological Society of Philadelphia, iv (1865), p. 102. Cuba. (Described as *Phasgonophora.*)

ONATAS (*Walker*); Annales de la Société Entomologique de France, 2d ser., i, p. 146. Florida. (Described as *Hockeria.*)

ORNATICOLLIS *Cameron;* Biologia Centrali-Americana, Pt. xxxi, July, 1884, p. 100. Bugaba, Panama.

PERPULCHRA (*Walsh*); Insects Injurious to Vegetation in Illinois, p. 42. Illinois. (Described as *Hockeria.*)
RUFITARSIS (*Cameron*); Biologia Centrali-Americana, Pt. xxxi, July, 1884, p. 98 (Tab. v, figs. 10, *a*, *b*, *c*, *d*). Chiriqui, Panama. (*Phasgonophora.*)
RUFIVENTRIS (*Sichel*); Annales de la Société Entomologique de France, ser. 4, v, p. 360 (Tab. 9, fig. 4). (*Phasgonophora.*)
SULCATA (*Westwood*); Griffith's Animal Kingdom, xv, p. 432. Georgia. (Described as *Phasgonophora.*)
XANTICLES (*Walker*); Annales de la Société Entomologique de France, 2d ser., i, p. 147. Florida. (Described as *Hockeria.*)

Genus ACANTHOCHALCIS Cameron.

NIGRICANS *Cameron;* Biologia Centrali-Americana, Pt. xxxi, July, 1884, p. 101 (Tab. vi, figs. 14, 14*a*). Sonora, Mexico.

Genus EPITRANUS Walker.

CASTANEUS *Cresson;* Proceedings Entomological Society, Philadelphia, iv (1865), p. 100. Cuba.
FULVESCENS *Walker;* Entomological Magazine, ii, p. 26. Saint Vincent.

Genus NOTASPIS Walker.

FORMICIFORMIS *Walker;* Entomological Magazine, ii, p. 38. Saint Vincent.

Subfamily EUCHARINÆ.

Genus LIRATA Cameron.

LUTEOGASTER *Cameron;* Biologia Centrali-Americana, Pt. xxxi, July, 1884, p. 102 (Tab. v, figs. 16, 16*a*). Taboga, Panama.

Genus LOPHYROCERA Cameron.

NIGROMACULATA *Cameron; ibid.*, p. 104 (Tab. 8, figs. 19, *a*, *b*). Nicaragua.
STRAMINEIPES *Cameron; ibid.*, p. 103 (Tab. v, figs. 18, *a*). Panama.

Genus ORASEMA Cameron.

STRAMINEIPES *Cameron; ibid.*, p. 105 (Tab. v, figs. 20, *a*, *b*, *c;* vi, 18, *a*, *b*, *c*, *d*, *e*). Panama.

Subfamily PERILAMPINÆ.

Genus PERILAMPUS Latreille.

ALEXINUS *Walker;* List of the Specimens of Hymenopterous Insects in the Collection of the British Museum. Part I, Chalcidites (1846), appendix, p. 89. Georgia.
CYANEUS *Brullé;* Histoire Naturelle des Insectes, Hyménoptères, 1846, p. 573. Carolina.
ENTELLUS *Walker;* Annals of Natural History, xii, p. 103. Ohio.
HYALINUS *Say;* Leconte's Edition of Say's Writings, i, p. 382. Pennsylvania.
LEPREOS *Walker;* British Museum Catalogues, Chalcidites, i, appendix, p. 89. Georgia.
PLATIGASTER *Say;* Leconte's Edition of Say's Writings, ii, p. 722. Indiana.
TRIANGULARIS *Say; ibid.*, i, p. 381. Indiana.

Subfamily EURYTOMINÆ.

Genus EURYTOMA Rossi.

ABATOS *Walker;* Annales de la Société Entomologique de France, ser. 2, i, p. 152. Florida.

ABNORMICORNIS *Walsh;* American Entomologist, ii, p. 299. Illinois.

ALBIPES *Ashmead;* Transactions American Entomological Society, ix (1882), p. xxxi. Florida.

ARGENTATA *Cameron;* Biologia Centrali-Americana, Part xxxi, July, 1884, p. 108. Guatemala.

AURICEPS *Walsh;* American Entomologist, ii, p. 289. Illinois.

AURIFRONS *Cameron;* Biologia Centrali-Americana, Part xxxi, July, 1884, p. 108 (Table V, Figs. 11, *a*, *b*, *c*, *d*, *e*). Guatemala.

BICOLOR *Walsh; ibid.*, p. 298. Illinois.

BOLTERI *Riley;* First Missouri Entomological Report, p. 177. Missouri.

CRETHEIS *Walker;* Annales de la Société Entomologique de France, 2d ser., i, p. 150. Florida.

DIASTROPHI *Walsh;* American Entomologist, ii, p. 299. Illinois.

FUNEBRIS *Howard;* Annual Report U. S. Commissioner of Agriculture, 1879, p. 196. District of Columbia.

GIGANTEA *Walsh;* American Entomologist, ii, p. 300. Illinois.

HECALE *Walker;* Annales de la Société Entomologique de France, 2d ser., i, p. 151. Florida.

IPHIS *Walker;* British Museum Catalogues, Chalcidites, i, appendix, p. 85. Florida.

LANULÆ *Fitch;* Fifth Report on the Noxious Insects of New York, p. 37. New York.

ORBICULATA *Say;* Leconte's Edition of Say's Writings, ii, p. 720. Indiana.

PETIOLIVENTRIS *Cameron;* Biologia Centrali-Americana, Part xxxi, July, 1884, p. 108 (Table V, Fig. 12). Panama.

PHYLLOXERÆ *Ashmead;* Transactions American Entomological Society, ix (1882), p. xxx. Florida.

PRUNICOLA *Walsh;* American Entomologist, ii, p. 298. Illinois. Var. *globulicola, ibid.*

PUNCTIVENTRIS *Walsh; ibid.*, p. 299. Illinois.

PHYTHES *Walker;* Annales de la Société Entomologique de France, 2d ser., i, p. 154. Florida.

STUDIOSA *Say;* Leconte's Edition of Say's Writings, ii, p. 721. Indiana.

SUCCINIPEDIS *Ashmead;* Transactions American Entomological Society, ix (1882), p. xxxi. Florida.

TEREDON *Walker;* Annales de la Société Entomologique de France, 2d ser., i, p. 153. Florida.

VAGABUNDA *Ashmead;* Canadian Entomologist, xiii (1881), p. 134. Florida.

Genus DECATOMA Spinola.

ANTIQUA *Scudder;* Bulletin U. S. Geological Survey, iv, p. 749. Fossil in Green River shales, Colorado.

BATATOIDES *Ashmead;* Canadian Entomologist, xiii, p. 136. Florida.

BICOLOR *Ashmead;* Transactions American Entomological Society, ix (1882), p. xxxii. Florida.

CATESBÆI *Ashmead; ibid.* Florida.

FLAVA *Ashmead;* Canadian Entomologist, xiii, p. 135. Florida.

FOLIATÆ *Ashmead; ibid.*, p. 136. Florida.

HYALIPENNIS *Walsh;* American Entomologist, ii, p. 301. Illinois.

LANÆ *Ashmead;* Canadian Entomologist, xiii, p. 135. Florida.

NIGRICEPS *Walsh;* American Entomologist, ii, p. 300. Illinois. Var. *excrucians, ibid.*

NUBILISTIGMA *Walsh;* American Entomologist, ii, p. 301. Illinois.

ORETILIA *Walker;* Annals of Natural History, xii, p. 46. Saint Vincent.
PHELLOS *Ashmead;* Canadian Entomologist, xiii, p. 136. Florida.
QUERCI *Ashmead;* Canadian Entomologist, xiii, p. 135. Florida.
SIMPLICISTIGMA *Walsh;* American Entomologist, ii, p. 301. Illinois.
VARIANS *Walsh; ibid.*, p. 300. Illinois.

Genus ISOSOMA Walker.

ELYMI *French;* Canadian Entomologist, xiv (1882), p. 10. Illinois.
GRANDE *Riley;* Bulletin of the Brooklyn Entomological Society, vii, p. 111 (December, 1884). Indiana; Ohio.
HORDEI (*Harris*); New England Farmer, ix, No. 1, p. 2 (July 23, 1830). Eastern United States. (Described as *Eurytoma.*)
TRITICI *Riley;* American Naturalist, xvi, p. 248 (March, 1882). Kentucky; Missouri; Illinois; Indiana; Washington Territory.
VITIS *Saunders;* Canadian Entomologist, ii, p. 26 (November, 1869). Canada.

Genus BEPHRATA Cameron.

RUFICOLLIS *Cameron;* Biologia Centrali-Americana, Part xxxi, July, 1884, p. 109 (Table V, Figs. 13, *a*). Panama.

Subfamily AXIMINÆ.

Genus HONTALIA Cameron.

CÆRULEA *Cameron; ibid.*, p. 113 (Table VI, Figs. 1, *a*). Nicaragua.
RUFICORNIS *Cameron; ibid.*, p. 113 (Table VI, Figs. 2, *a*, *b*, *c*). Panama.

Subfamily TORYMINÆ.

Genus DIOMORUS Walker.

MAYRI *Cameron; ibid.*, p. 106 (Table iv, Figs. 17, *a*, *b*). Guatemala.
RUFIPES, *Cameron; ibid.*, p. 105. Guatemala.

Genus SYNTOMASPIS Förster.

MACULIPENNIS *Cameron; ibid.*, p. 107. Sonora, Mexico.

Genus MEGASTIGMUS Dalman.

PINUS *Parfitt;* The Zoologist, 15, p. 5543. California.

Genus CALLIMOME Spinola.

ADVENA *Osten-Sacken;* Transactions American Entomological Society, iii, (1870–'71), p. 59. District of Columbia.
ÆA *Walker;* Annals of Natural History, xii, p. 104. New York.
ÆNEA *Ashmead;* Transactions American Entomological Society, ix (1882), p. xxxiii. Florida.
BREVICAUDA *Osten-Sacken; ibid.*, iii, p. 62. District of Columbia. (?)
BREVISSIMICAUDA *Ashmead; ibid.*, ix, p. xxxiii. Florida.
CÆRULEA *Ashmead; ibid.* Florida.
CECIDOMYIÆ *Walker;* Annals of Natural History, 14, p. 15. Hudson's Bay.
CHRYSOCHLORA *Osten-Sacken;* Transactions American Entomological Society, iii, p. 63. New England.
DURA *Osten-Sacken; ibid.*, p. 59. *Nul. loc.*
ELEGANTISSIMA *Ashmead; ibid.*, ix, p. xxxiv. Florida.

FLAVICOXA *Osten-Sacken; ibid.*, iii, p. 61. *Nul. loc.*

LISSUS *Walker;* Annales de la Société Entomologique de France, 2d ser., i, p. 150. Florida.

MAGNIFICA *Osten-Sacken;* Transactions American Entomological Society, iii, p. 62. *Nul. loc.*

RECEMARIÆ *Ashmead; ibid.*, ix, p. xxxiii. Florida.

SOLITARIA *Osten-Sacken; ibid.*, iii, p. 64. *Nul. loc.*

SPLENDIDUS *Barnstone* MSS., *Walker;* Annals of Natural History, 14, p. 14. Hudson's Bay.

THEON *Walker;* Annales de la Société Entomologique de France, 2d ser., i, p. 149. Florida.

TUBICOLA *Osten-Sacken;* Transactions American Entomological Society, iii, p. 60. District of Columbia.

VIRENTIS *Ashmead; ibid.*, ix, p. xxxiv. Florida.

Genus TORYMUS Dalman.

AMETHYSTINUS *Harris;* Catalogue of the Insects of Massachusetts, 2d ed. Massachusetts.

AZALEÆ *Harris; ibid.* Massachusetts.

OCHREATUS *Say;* Leconte's Edition of Say's Writings, ii, p. 723. Indiana.

PAVIDUS *Say; ibid.* Indiana.

SEMIAURATUS *Harris;* Catalogue of the Insects of Massachusetts, 2d ed.

Genus ORMYRUS Westwood.

LABOTUS *Walker;* Annales de la Société Entomologique de France, ser. 2, i, p. 148. Florida.

Genus IDARNES Walker.*

CARME *Walker;* Annals of Natural History, 12, p. 47. Saint Vincent.

Subfamily EUPELMINÆ.

Genus EUPELMUS Dalman.

ALBISPINA *Cameron;* Biologia Centrali-Americana, Pt. xxxi, July, 1884, p. 120. Panama.

ALLYNII (*French*); Canadian Entomologist, xiv (1882), p. 9. Illinois. (Described as *Isosoma.*)

BIMACULATUS *Cameron;* Biologia Centrali-Americana, Pt. xxxi, July, 1884, p. 120. Panama.

BREVICORNIS *Cameron; ibid.*, p. 117. Panama.

BUCCULATRICIS *Howard* MSS.; *Brunn,* in Second Report Department Entomology, Cornell University Experiment Station (1883), p. 161. New York.

CINGULATUS *Cameron;* Biologia Centrali-Americana, Pt. xxxii, Aug., 1884, p. 122. Guatemala; Panama.

COMPRESSICORNIS *Cameron; ibid.*, Pt. xxxi, July, 1884, p. 115 (Tab. vi, fig. 12). Panama.

CYNIPIDIS *Ashmead;* Canadian Entomologist xiv, p. 37. Florida.

EPICASTE *Walker;* Annals of Natural History, 20, p. 20. North America.

ERYTHROTHORAX *Cameron;* Biologia Centrali-Americana, Pt. xxxii, Aug., 1884, p. 121. Panama.

FASCIIVENTRIS *Cameron; ibid.*, p. 123. Panama.

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*I am not familiar with this genus, and place it only on the authority of a suggestion in Walker's notes on the *Agonidæ*. L. O. H.

FLAVIPES *Cameron; ibid.*, p. 122. Guatemala.
FLORIDANUS *Howard;* Canadian Entomologist xii (1880), p. 209. Florida.
FONTEIA *Walker;* Annals of Natural History, 20, p. 19. North America.
GENICULATUS *Cameron;* Biologia Centrali-Americana, Pt. xxxi, July, 1884, p. 119. Panama.
GIGAS *Cameron; ibid.*, p. 116 (Tab. vi, figs. 9, *a*). Panama.
GRACILIS *Cameron; ibid.*, Pt. xxxii, Aug., 1884, p. 121. Guatemala.
HYALINIPENNIS *Cameron; ibid.*, p. 121. Guatemala.
LAMACHUS *Walker; ibid.*, p. 20. North America.
MIRABILIS (*Walsh*); American Entomologist ii, p. 369. Illinois. (Described as *Antigaster*, nov. gen.)
PETIOLARIS *Cameron;* Biologia Centrali-Americana, Pt. xxxii, Aug., 1884, p. 123. Guatemala.
REDUVII *Howard;* Canadian Entomologist xii, p. 207. District of Columbia.
ROSÆ *Ashmead; ibid.*, xiv, p. 36. Florida.
TESTACEUS *Cameron;* Biologia Centrali-Americana, Pt. xxx, July, 1884, p. 117 (Tab. vi, figs. 10, *a*). Panama.
TESTACEICORNIS *Cameron; ibid.*, p. 119. Panama.

Genus BRASEMA Cameron.

BREVISPINA *Cameron; ibid.*, Pt. xxxii, Aug., 1884, p. 124. Guatemala.

Genus ASEIRBA Cameron.

CAUDATA *Cameron; ibid.*, p. 128 (Tab. vi, fig. 13). *Nul. loc.*

Genus LUTUES Cameron.

CRASSICORNIS *Cameron; ibid.*, p. 126 (Tab. vi, fig. 15). Panama.
DROMEDARIUS *Cameron; ibid.*, p. 126. Panama.
LONGIVENTRIS *Cameron; ibid.*, p. 127. Panama.
ORNATICOLLIS *Cameron; ibid.*, p. 125 (Tab. vi, Figs. 16, *a*). Panama.

Genus METAPELMA Westwood.

SPECTABILIS *Westwood;* Proceedings of the Zoological Society, 1835, p. 69. Georgia.

Subfamily ENCYRTINÆ.

Genus RHOPUS Förster.

COCCOIS (*E. A. Smith*); North American Entomologist, i., p. (Described as *Acerophagus*, nov. gen.)

Genus APHYCUS Mayr.

ANNULIPES (*Ashmead*); Canadian Entomologist, xiv, p. 37. Florida. (Described as a *Coccophagus.*)
BRUNNEUS *Howard; ante*, p. 17. New Jersey.
CEROPLASTIS *Howard; ante*, p. 18. New Mexico.
ERUPTOR *Howard;* Annual Report U. S. Commissioner of Agriculture, 1880, p. 364. Florida; Virginia.
FLAVUS *Howard; ibid.*, p. 365. Florida.
MACULIPES *Howard; ante*, p. 18. South Carolina.
PULVINARIÆ *Howard;* Annual Report U. S. Commissioner of Agriculture, 1880, p. 365. Iowa.

Genus BLASTOTHRIX Mayr.

ADJUTABILIS *Howard; ibid.*, p. 365. Florida; Virginia.
INCERTA *Howard; ibid.*, p. 366. Florida.
LONGIPENNIS *Howard; ibid.*, p. 366. District of Columbia.

Genus ENCYRTUS Dalman.

ARTACEÆ *Howard; ibid.*, p. 252. Florida.
BOLUS *Walker;* Annals of Natural History, 14, p. 17. Hudson's Bay.
BUCCULATRICIS *Howard;* Lintner's First Report as State Entomologist of New York (1882), p. 160. New York; Missouri; District of Columbia.
CECIDOMYIÆ *Howard; ante*, p. 16. Virginia.
ENSIFER *Howard; ante*, p. 13. Florida.
FLACCUS *Walker;* Annals of Natural History, 20, p. 21. North America.
FLAVUS *Howard;* Annual Report U. S. Commissioner of Agriculture, 1880, p. 367. California.
FUSCICORNIS *Howard; ante*, p. 13. Maryland.
GARGARIS *Walker;* Annals of Natural History, 12, p. 47. Saint Vincent.
GASTRON *Walker; ibid.*, 20, p. 21. North America.
HYETTUS *Walker; ibid.*, 17, p. 181. Saint Vincent.
INQUISITOR *Howard;* Annual Report U. S. Commissioner of Agriculture, 1880, p. 367. Florida.
MONTINUS *Packard;* Geology of New Hampshire, vol. i, Final Rept., chap. xii, p. 347. New Hampshire.
PACHYPSYLLÆ *Howard; ante*, p. 15. Maryland.
PUNCTICEPS *Howard; ante*, p. 14. Virginia.
REATE *Walker;* Annals of Natural History, 20, p. 22. North America.
SOLUS *Howard; ante*, p. 15. Florida.
SUBLESTUS *Howard; ante*, p. 12. Florida.
TRIOZIPHAGUS *Howard; ante*, p. 14. District of Columbia.
TURNI *Packard;* Proceedings Boston Society of Natural History, xxi, p. 32. *Nul. loc.*
VECTIUS *Walker;* Annals of Natural History, 20, p. 21. North America.

Genus PSILOPHRYS Mayr.

HYALINIPENNIS *Howard; ante*, p. 21. Missouri.

Genus LEPTOMASTIX Förster.

DACTYLOPII *Howard; ante*, p. 23. District of Columbia.

Genus COPIDOSOMA Ratzeburg.

CELÆNÆ *Howard; ante*, p. 11. Missouri.
GELECHIÆ *Howard; ante*, p. 10. District of Columbia; New Hampshire; Missouri.
INTERMEDIUM *Howard; ante*, p. 12. New Jersey.
VAGUM *Howard; ante*, p. 11. Missouri.

Genus COMYS Förster.

BICOLOR *Howard;* Annual Report U. S. Commissioner of Agriculture, 1880, p. 362. District of Columbia.
FUSCA *Howard; ibid.*, p. 363. Alabama.

Genus CHILONEURUS Westwood.

ALBICORNIS *Howard; ibid.*, p. 363. District of Columbia; Iowa; South Carolina.
DUBIUS *Howard; ante*, p. 17. Wisconsin.
DACTYLOPII *Howard; ante*, p. 17. District of Columbia.

Genus HOMALOTYLUS Mayr.

OBSCURUS *Howard; ante*, p. 22. Florida.

Genus BOTHRIOTHORAX Ratzeburg.

PECULIARIS *Howard; ante*, p. 20. Virginia.
VIRGINIENSIS *Howard*; *ante*, p. 20. Virginia.

Subfamily APHELININÆ.

Genus COCCOPHAGUS Westwood.

ATER *Howard;* Annual Report U. S. Commissioner of Agriculture, 1880, p. 359. New York.
COGNATUS *Howard; ibid.*, p. 359. District of Columbia.
FLAVIFRONS *Howard; ante*, p. 25. Florida.
FRATERNUS *Howard;* Annual Report U. S. Commissioner of Agriculture, 1880, p. 359. District of Columbia.
FUSCIPES *Howard; ibid.*, p. 359. Florida.
IMMACULATUS *Howard; ibid.*, p. 358. District of Columbia.
KOEBELEI *Howard; ante*, p. 25. Florida.
LECANII (*Fitch*); Fifth Report as State Entomologist of New York, p. 25. New York; Illinois; District of Columbia; California. (Described as *Platygaster*.)
VARICORNIS *Howard;* Annual Report U. S. Commissioner of Agriculture, 1880, p. 360. District of Columbia.
VIVIDUS *Howard; ante*, p. 24. Florida.

Genus APHELINUS Dalman.

ABNORMIS *Howard;* Annual Report U. S. Commissioner of Agriculture, 1880, p. 355. District of Columbia.
ASPIDIOTICOLA *Ashmead;* Canadian Entomologist xi (1879), p. 159. Florida. (Evidently a Mymarid.)
DIASPIDIS *Howard;* Annual Report U. S. Commissioner of Agriculture, 1880, p. 355. Florida; California.
FUSCIPENNIS *Howard; ibid.*, p. 356. Florida; California; District of Columbia.
MALI (*Haldeman*); Proceedings Boston Society of Natural History, vi, p. 403. Pennsylvania; Illinois; Missouri; District of Columbia. (Described under *Eriophilus*, nov. gen.)
MYTILASPIDIS *Le Baron*; American Entomologist, ii, p. 360. Illinois; Missouri; New York; California; District of Columbia.
PULCHELLUS *Howard;* Annual Report U. S. Commissioner of Agriculture, 1880, p. 356. District of Columbia.

Subfamily PIRENINÆ.

Genus MACROGLENES Westwood.

QUERCI-GLOBULI *Fitch;* Fifth Report as State Entomologist of New York, p. 32. New York.
QUERCI-PISI *Fitch; ibid.*, p. 39. New York.

Genus TOMOCERA Howard.

CALIFORNICA *Howard;* Annual Report U. S. Commissioner of Agriculture, 1880, p. 368. California.

Subfamily SPALANGIINÆ.

Genus SPALANGIUS Latreille.

CHONTALENSIS *Cameron;* Biologia Centrali-Americana, Part xxxi, July, 1884, p. 110 (Table v, Figs. 14, *a*). Nicaraugua.

POLITUS *Say;* Leconte's Edition of Say's Writings, i, p. 382. Virginia.

QUERCI-LANÆ *Fitch;* Fifth Report as State Entomologist of New York, p. 36. New York.

SYRPHI *Ashmead;* Canadian Entomologist, xiii, p. 171. Florida.

Genus PARALÆSTHESIA Cameron.

MANDIBULARIS *Cameron;* Biologia Centrali-Americana, Part xxxi, July, 1884, p. 111 (Table v, Figs. 15, *a, b, c, d*). Panama.

Subfamily PTEROMALINÆ.

Genus LAMPROTATUS Westwood.

CYRNUS *Walker;* Annales de la Société Entomologique de France, 2d ser., i, 157. Florida.

DIÆUS *Walker;* Annals of Natural History, 14, p. 16. Hudson's Bay.

HABIS *Walker;* Annales de la Société Entomologique de France, 2d ser., i, p. 155. Florida.

SALEMUS *Walker; ibid.*, p. 156. Florida.

TRYPHENUS *Walker; ibid.*, p. 158. Florida.

Genus MICROMELUS Walker.

CYRENE *Walker; ibid.*, p. 154. Florida.

Genus GLYPHE Walker.

VIRIDASCENS *Walsh;* Insects Injurious to Vegetation in Illinois, p. 38, fig. 9. Illinois.

Genus EPISTENIA Westwood.

CŒRULATA *Westwood;* Griffith's Animal Kingdom, 15, p. 432. Georgia.

Genus LELAPS Halliday.

PULCHRICORNIS *Halliday;* Transactions Entomological Society of London, vol. iii, p. 300. Saint Vincent.

Genus PACHYNEURON Walker.

ALBUTIUS *Walker;* Annales de la Société Entomologique de France, 2d ser., i, p. 158. Florida.

ALTISCUTA *Howard*, MSS., *Cook, A. J.;* Notes on Injurious Insects; Entomological Laboratory, Michigan Agricultural College, August, 1884, p. 13. Michigan.

Genus CHEIROPACHYS Westwood.

NIGRO-CYANEUS *Norton;* Transactions American Entomological Society, ii, p. 327. Connecticut.

Genus SEMIOTELLUS Westwood.

CHALCIDIPHAGUS *Walsh;* American Entomologist, ii, p. 368. Canada; Virginia.

CLISIOCAMPÆ *Fitch;* Second Report as State Entomologist of New York, p. 200. New York. (Described as *Cleonymus.*)

DESTRUCTOR (*Say*); Leconte's Edition of Say's Writings, ii, p. 6. Northern United States. (Described as *Ceraphron.*)

Genus STICTONOTUS Förster.

ISOSOMATIS *Riley;* Annual Report U. S. Commissioner of Agriculture, 1881–'82, p. 186. Tennessee.

Genus ENTELUS Walker.

SCYMNÆ *Shimer;* Transactions American Entomological Society, ii, p. 385. Illinois.

Genus PTEROMALUS Swederus.

ARCTIÆ *Harris;* Catalogue of the Insects of Massachusetts, 2d ed.
CALANDRÆ *Howard;* Annual Report U. S. Commissioner of Agriculture, 1880, p. 273. Texas.
CASSOTIS *Walker;* Annals of Natural History, 19, p. 393. North America.
CLISIOCAMPÆ *Harris;* Catalogue of the Insects of Massachusetts, 2d ed.
CRATYLUS *Walker;* Annals of Natural History, 19, p. 392. North America.
DAMO *Walker; ibid.*, p. 395. North America.
DIPSUS *Walker; ibid.*, p. 394. North America.
DORYSSUS *Walker; ibid.*, p. 395. North America.
DYMNUS *Walker; ibid.*, p. 397. North America.
EPICLES *Walker; ibid.*, p. 394. North America.
ERYX *Walker; ibid.*, p. 397. North America.
EURYPON *Walker; ibid.*, p. 398. North America.
EUTHYMUS *Walker; ibid.*, p. 393. North America.
GELECHIÆ *Webster;* Twelfth Report of the State Entomologist of Illinois (1882), p. 151. Illinois.
HELICE *Walker;* Annals of Natural History, 12, p. 46. Saint Vincent.
HERMEAS *Walker; ibid.*, 19, p. 394. North America.
HYBREAS *Walker; ibid.*, p. 397. North America.
LAUSUS *Walker; ibid.*, p. 392. North America.
LEPTURUS *Harris;* Catalogue of the Insects of Massachusetts, 2d ed.
OBESUS *Harris; ibid.*
ŒAX *Walker;* Annals of Natural History, 19, p. 395. North America.
ONERATE *Fitch;* Fifth Report as State Entomologist of New York, p. 32. New York.
ORONTAS *Walker;* Annals of Natural History, 19, p. 396. North America.
QUADRI-MACULATÆ *Ashmead;* Canadian Entomologist, xiii, p. 171. Florida.
QUERCI-PILLULÆ *Fitch;* Fifth Report, p. 39. New York.
TABACCUM *Fitch;* Ninth Report, p. 792. New York.
TIMÆA *Walker;* Annals of Natural History, 19, p. 396. North America.
VANNESSÆ *Harris;* Catalogue of the Insects of Massachusetts, 2d ed.
VERDITER *Norton;* Transactions American Entomological Society, ii, p. 327. *Nul. loc.*

Genus METOPON Walker.

DEIPHON *Walker;* Annales de la Société Entomologique de France, 2d ser., i, p. 161. Florida.

Subfamily ELACHISTINÆ.

Genus EUPLECTRUS Westwood.

BICOLOR (*Swederus*); Kongl. Vet. Ac. Handl., 1795, 204, 2. Saint Vincent. (Described as *Pteromalus.*)
CATOCALÆ *Howard; ante*, p. 27. Missouri; Maryland.
COMSTOCKII *Howard;* Canadian Entomologist, xii (1880), p. 159. Alabama.
FRONTALIS *Howard; ante*, p. 27. Virginia.
FURNIUS *Walker;* Annals of Natural History, 12, p. 48. Saint Vincent.
LEUCOTROPHIS *Howard; ante*, p. 26. Florida.
PLATYHYPENÆ *Howard; ante*, p. 26. District of Columbia.

Genus STENOMESIUS (?) Westwood.

APHIDICOLA *Ashmead;* Orange Insects (Jacksonville, 1880), p. 67. Florida.

Genus ELACHISTUS Spinola.

CACŒCIÆ *Howard; ante,* p. 28. Missouri.
COXALIS *Howard; ante,* p. 28. District of Columbia.
LEVANA *Walker;* Annals of Natural History, 20, p. 27. North America.
PROTEOTERATIS *Howard; ante,* p. 27. Missouri.

Genus CIRROSPILUS Westwood.

EUNAPIUS *Walker;* Annals of Natural History, 20, p. 27. North America.
FLAVICINCTUS *Riley;* Lintner's First Report as State Entomologist of New York (1882), p. 159. Missouri.

Subfamily ELASMINÆ.

Genus ELASMUS Westwood.

ALBICOXA *Howard; ante,* p. 30. Missouri.
NIGRIPES *Howard; ante,* p. 30. Missouri.
PULLATUS *Howard; ante,* p. 30. Missouri.
TISCHERIÆ *Howard; ante,* p. 30. District of Columbia.
VARIUS *Howard; ante,* p. 29. Missouri.

Subfamily EULOPHINÆ.

Genus SYMPIEZUS Förster.

LITHOCOLLETIDIS *Howard* MSS.; *Brunn* in Second Report Department of Entomology, Cornell University Experiment Station (1883), p. 150. New York.

Genus EULOPHUS Geoffrey.

BASALIS *Say;* Leconte's Edition of Say's Writings, ii, p. 721. Indiana.
CALAVIUS *Walker;* Annals of Natural History, 20, p. 24. North America.
CYRIADES *Walker; ibid.,* p. 25. North America.
DICLADUS *Say;* Leconte's Edition of Say's Writings, ii, p. 721. Indiana.
GORBRYAS *Walker;* Annals of Natural History, 20, p. 26. North America.
HIRCINUS *Say;* Leconte's Edition of Say's Writings, ii, 722. Indiana.
IPINOË *Walker;* Annals of Natural History, 20, p. 25. North America.
MINIS *Walker; ibid.* North America.
MINUTUS *Howard* MSS.; *Brunn* in Second Report Department of Entomology, Cornell University Experiment Station (1883), p. 150. New York.
MINYAS *Walker;* Annals of Natural History, 20, p. 25. North America.
SEMIDIÆ *Packard;* Report Geology New Hampshire, i (1874), p. 347, fig. 46. New Hampshire.
SAUNDERSII *Packard;* Proceedings Boston Society of Natural History, vol. xxi (1880), p. 34. Canada.
THECLÆ *Packard; ibid. Nul. loc.*

Genus ANTHOPHORABIA Newport.

MEGACHILIS *Packard;* Proceedings Essex Institute, iv., p. 13. *Nul. loc.*

Subfamily ENTEDONINÆ.

Genus ENTEDON Dalman.

ANTIOPÆ *Packard;* Proceedings Boston Society of Natural History, xxi (1880), p. 36. *Nul. loc.*

DIASTATÆ *Howard;* Annual Report U. S. Commissioner of Agriculture, 1880, p. 246. District of Columbia.

HERILLUS *Walker;* Annals of Natural History, 20, p. 23. North America.

IMBRASUS *Walker; ibid.* North America.

SARDUS *Walker; ibid.* North America.

Genus DEROSTENUS Westwood.

TISCHERIÆ (*Howard* MSS.); *Brunn* in Second Report Department of Entomology, Cornell University Experiment Station (1883), p. 157. (There mentioned as an *Astichus.*)

Subfamily TETRASTICHINÆ.

Genus GYROLASIA Förster.

FLAVIMEDIA *Howard;* Annual Report U. S. Commissioner of Agriculture, 1880, p. 369. California.

Genus TETRASTICHUS Halliday.

EPIDIUS *Walker;* Annals of Natural History. 20, p. 28. North America.

ESURUS (*Riley*); Canadian Entomologist, xi (1879), p. 162. Southern United States. (Described as a *Cirrospilus.*)

GALA *Walker;* Annals of Natural History, 20, p. 28. North America.

GRANULATUS *Walker; ibid.*, 14, p. 17. Hudson's Bay.

LAEMON *Walker; ibid.*, 20, p. 28. North America.

Subfamily TRICHOGRAMMINÆ.

Genus TRICHOGRAMMA Westwood.

? FRATERNA *Fitch;* Second New York Report, p. 217. New York.

FLAVUS *Ashmead;* Orange Insects (1880), p. 33, pl. i. Florida.

MINUTA *Riley;* Third Missouri Entomological Report, p. 158. Missouri.

MINUTISSIMUM *Packard;* Proceedings Boston Society of Natural History, xxi (1880), p. 37. *Nul. loc.*

? ORGYIÆ *Fitch;* Second New York Report, p. 216. New York.

PRETIOSA *Riley;* Canadian Entomologist, xi (1879), p. 161. Southern United States.

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